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MONTANA APPRENTICEABLE OCCUPATIONS

April, 1990

State of Montana
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Department of Labor and Industry
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INTRODUCTION

The Montana State Occupational Information Coordinating Committee (SOICC) provides information for people who are making occupational and career choices.

The Montana SOICC is a cooperative committee made up of representatives of several state agencies:

- Department of Vocational Education Services, Office of Public Instruction
- Job Service and Training Division, Department of Labor and Industry
- Employment Policy Division, Department of Labor and Industry
- Rehabilitative Services Division, Department of Social and Rehabilitation Services
- Office of Research and Information Services, Department of Commerce
- Office of the Commissioner of Higher Education

The following pages present information on apprenticeships in Montana. This publication will help individuals who are considering a career which requires an apprenticeship. Sources of the information include the following:

- Apprenticeship and Training Bureau, Montana Department of Labor and Industry
- Federal Bureau of Apprenticeship and Training
- State licensing agencies, labor unions, employers
- Research and Analysis Bureau, Employment Policy Division, Montana Department of Labor and Industry

APPRENTICESHIP PROGRAMS

Apprenticeship is an on-the-job training system for workers to learn a skilled craft or trade from employers. Some skilled crafts require apprenticeship training. Apprenticeship training is one way to get training for entry-level journeyworker positions.

One study of the construction trades shows that apprentices get more varied training than people who learn trades informally. Journeyworkers who train through formal apprenticeships work longer and more of them become supervisors than those who train informally.

Apprenticeship programs vary from one to five years in length. An apprentice receives related instruction in a combination of settings. These include classes through a vocational technical center, correspondence courses, special training sessions arranged by individual manufacturers, or classes offered by individual unions. Related instruction courses are approved by the Montana Office of Public Instruction (OPI). OPI has also set aside Carl Perkins Vocational Education Act funds to assist on a cost-matching basis to pay for related training courses.

Apprentices completing a program registered with the Montana Apprenticeship Bureau receive a nationally recognized completion certificate. The certificate confirms the high quality of the training program and the performance of the apprentice.

Qualifications vary by trade, employer, and local apprenticeship committees. Montana law says apprentices must be 16 years old. They must be physically fit for the occupation. Some apprenticeships require specific coursework and a minimum grade point average. Applicants must sometimes take an aptitude test and interview with a selection committee.

Apprenticeship openings depend on available job openings. Normally, there are more applicants than vacancies. Entering into apprenticeships is becoming very competitive.

Starting wage for an apprentice ranges from 35% to 80% of the journeyworker's wage. The average wage is about 50%.

Union affiliation is not essential for registration of an apprenticeship program. Employers and labor unions sponsor apprenticeship programs in Montana. Unions often manage their apprenticeships through committees called Joint Apprenticeship and Training Committees (JATCs), which include both employer and union members.

For information about specific apprenticeship programs and application procedures, write or call the following agencies:

- Employers interested in setting up a registered apprenticeship program can write or call the Montana Apprenticeship and Training Bureau. Their address is

Employment Policy Division, Department of Labor and Industry, P.O. Box 1728, Helena, Montana 59624; phone (406) 444-4511. Staff help set up and conduct apprenticeship programs.

- Employers interested in setting up a registered apprenticeship program can also call the Bureau of Apprenticeship and Training, U.S. Department of Labor, Drawer 10055 Federal Building, 301 S. Park Avenue, Helena, Montana 59626-0055; phone (406) 449-5261.
- All Montana Job Service offices give applicants the General Aptitude Test Battery (GATB). This test helps them determine if they have the general aptitudes necessary for specific occupations. Job Service offices also offer career counseling in larger cities.
- An employer's office
- A labor union office
- Community apprenticeship committees

The numbers of active apprentices are from the Montana Apprenticeship and Training Bureau 1989 annual report. The publication shows average length of programs. This may vary depending on location of the program. This publication does not contain a complete listing of apprenticeable occupations.

AIRCRAFT MECHANIC

D.O.T. Code 621.281-014

Aircraft mechanics perform scheduled maintenance, repairs, and complete inspections of aircraft. The Federal Aviation Administration requires these inspections. Mechanics may specialize in scheduled maintenance or in repair work. Maintenance mechanics examine engines through specially designed openings while working from ladders or scaffolds. They use hoists or lifts to remove the entire engine from the craft. Repair mechanics use the pilot's description of a problem to find and fix faulty equipment. They may replace defective or worn-out engine parts and broken or over-stressed air frame and sheet metal pieces.

Working Conditions

Mechanics usually work in hangars or in other indoor areas. However, if the hangers are full or if repairs must be made quickly, they work outdoors, sometimes in unpleasant weather. Mechanics often work under pressure to maintain flight schedules while maintaining safety standards. Mechanics frequently lift or pull as much as 50 pounds. They often stand, lie, or kneel in awkward positions. Occasionally mechanics must work in precarious positions on scaffolds or ladders. Noise and vibration are common when testing engines.

Physical Requirements

Good health, vision

Able to lift heavy parts and tools

Agility

Able to work in high places

Helpful School Subjects

Mechanical Drawing

Auto Mechanics

Welding

Metal shop

Electrical Shop

Math

Wood Shop

Physics

English

Chemistry

Licensing Requirements

Federal Aviation Administration licenses for "airframe mechanic," "powerplant mechanic," and "aircraft inspectors."

Union Affiliation

May or may not be affiliated with the International Association of Machinists and Aerospace Workers.

Additional Information

Length of this apprenticeship program is three years. High school diploma and at least 17 years old required. May require aptitude tests. Most work in large cities at the airlines' main stops. Experience in auto repair helpful. Employment opportunities best for those with a combination airframe and powerplant license as well as an aircraft inspector license. Airline employment competition is keen because wages are higher with more benefits. Most employers prefer vo-tech graduates or experienced mechanics as apprentices. For addresses of airline companies, write to: Air Transportation Association of America, 1709 New York Ave. NW, Washington, DC, 20006. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for aircraft mechanics in 1986 was 166. Employment is estimated to be 218 in 1995. Montana projections show there will be 13 annual average openings to 1995; six of these openings will be due to growth and seven due to separation. Average wage in 1989 for journeyworkers was about $8.00 per hour.

ARCHITECTURAL SHEET METAL WORKER

D.O.T. Code 619.360-014

Architectural sheet metal workers construct and assemble structural metal products. These products include framework or shells for machinery, ovens, tanks, stacks, and metal parts for buildings and bridges. Workers perform work according to job orders or blueprints. They use metalworking and welding equipment and handtools. They bolt, weld, rivet, or solder fabricated pieces to make a finished product.

Working Conditions

Most architectural sheet metal workers work indoors. Workers often work in awkward or cramped positions. The work may entail considerable bending, lifting, and standing. They sometimes work high above the ground. There is some danger of cuts from sharp objects.

Physical Requirements

Average numerical ability

Finger and manual dexterity

Good physical condition

Mechanical aptitude

High degree of precision

Ability to work in high places

Helpful School Subjects

Mechanical Drawing

Welding

Metal Shop

Math

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the Sheet Metal Workers' International Association.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old required. One year education or experience may be required. Competition keen. Noisy work environment. For information on nature of work, wages, methods of preparation, and on-the-job training, write the National Training Fund, Sheet Metal and Air Conditioning Industry, 1900 L Street NW, Suite 405, Washington, DC 20036. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Structural Metal Fabricators in 1986 was 162. Employment is estimated to be 120 in 1995. Montana projections show there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $16.42 per hour.

AUTOMOBILE BODY REPAIRER

D.O.T. Code 807.381-010

Automobile body repairers straighten bent frames, remove dents, and replace auto body parts damaged beyond repair. Repairers smooth out small dents and creases with hammers and use plastic or solder to fill small dents that cannot be worked out. Some body repairers replace safety glass. Others specialize in fiberglass bodies. Body repairers usually work by themselves with only general directions from supervisors. In large body shops, body repairers may specialize in one type of repair. Some do painting.

Working Conditions

Automobile body repairers work indoors in body shops which are noisy because of the banging of hammers against metal and the whir of power tools. Most shops are well ventilated, but often they are dusty and smell of paint. Body repairers often work in awkward or cramped positions and much of their work is strenuous and with dirty objects. Hazards include cuts from sharp metal edges, burns from torches and heated metal, and injuries from power tools.

Physical Requirements

General good health

Stamina

Good eye-hand coordination

Good color perception

Ability to lift up to 75 pounds

Ability to work in a closed space

with noise, dust, and chemical fumes

Helpful School Subjects

Metalworking

Welding

Drafting

Metallurgy

Auto Mechanics

Math

Painting

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Association of Machinists and Aerospace Workers (Automotive Trades).

Additional Information

Length of this apprenticeship program is four years. Must be at least 17 years old. JATC requires high school diploma or equivalent and aptitude test. Employment available both in small and large towns, but union shops are more prevalent in larger towns. Career advancement opportunities limited. Job opportunities better for applicants with previous related experience through a vo-tech, military service, etc. The Montana Automobile Dealers' Association manages an apprenticeship program in Montana; their address is 501 North Sanders, Helena, Montana 59601. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 15 active apprentices in Montana in 1989. The employment level for Automobile Body Repairers in 1986 was 551. Employment is estimated to be 638 in 1995. Montana projections show there will be 21 annual average openings to 1995; 10 of these openings will be due to growth and 11 due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

AUTOMOBILE MECHANIC

D.O.T. Codes 620.261-010, 620.281-038, 620.281-062, 620.281-066

Automobile mechanics use a variety of tools in their work. They use power tools such as pneumatic wrenches to remove bolts quickly; machine tools such as lathes and grinding machines to rebuild brakes and other parts; welding and flame cutting equipment to remove and repair exhaust systems and other parts; jacks and hoists to lift cars and engines; and common handtools such as screwdrivers, pliers, and wrenches to work on small parts and get at hard-to-reach places. Most automobile mechanics perform a variety of repairs while others specialize. Some of the specialists include automatic transmission mechanics, tune-up mechanics, automobile air conditioning mechanics, front-end mechanics, brake repairers, and automobile radiator mechanics.

Working Conditions

Modern automobile repair shops are well ventilated, lighted, and heated. Some older shops may not be so modern. Mechanics frequently work with dirty and greasy parts and in awkward positions. They often must lift heavy parts and tools. Minor cuts and bruises are common.

Physical Requirements

Good health

Stamina

Normal vision and hearing

Finger dexterity

Ability to reach for and

handle heavy equipment

Helpful School Subjects

Machine Shop

Mechanical Drawing

Auto Mechanics

Welding

Math

English

Licensing Requirements

None required but voluntary testing for national certification exists.

Union Affiliation

May or may not be affiliated with the International Association of Machinists and Aerospace Workers (Automotive Trades).

Additional Information

Length of apprenticeship programs vary from two to four years, depending on specialty. Must be at least 17 years old. JATC requires high school diploma or equivalent and aptitude test. Current vehicle operator's license and good driving record necessary. Employment available both in small and large towns. Union shops more prevalent in larger communities. Career advancement opportunities limited. Growing demand for specialists. The Montana Automobile Dealers' Association manages an apprenticeship program in Montana; their address is 501 North Sanders, Helena, Montana 59601. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 36 active apprentices in Montana in 1989. The employment level for Automobile Mechanics in 1986 was 1729. Employment is estimated to be 1856 in 1995. Montana projections show there will be 67 annual average openings to 1995; 14 of these openings will be due to growth and 53 due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

AUTOMOTIVE ELECTRICIAN

D.O.T. Code 825.281-022

Automotive electricians repair and overhaul electrical systems in automotive vehicles. They talk with customers to determine the nature of electrical malfunctions. Electricians then determine the malfunction by visual inspection. They use testing devices, such as oscilloscopes, voltmeters, and ammeters.

Working Conditions

Modern automobile repair shops are well ventilated, lighted, and heated. Some older shops may not be so modern. Automotive electricians frequently work in awkward positions. Minor cuts and bruises are common.

Physical Requirements

Good health

Stamina

Normal vision and hearing

Finger dexterity

Helpful School Subjects

Mechanical Drawing

Auto Mechanics

Machine Shop

Math

English

Welding

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. Must be at least 17 years old. JATC requires high school diploma or equivalent, aptitude test. Ability to reach for and handle heavy equipment. Employment available both in small and large towns. Career advancement opportunities limited. Union shops more prevalent in larger communities. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for All Other Electrical and Electronic Equipment Mechanics, Installers, and Repairers in 1986 was 156. Employment is estimated to be 179 in 1995. Montana projections show there will be eight annual average openings to 1995; three of these openings will be due to growth and five due to separation. Average wage in 1989 for journeyworkers was about $8.00 per hour.

AVIONICS TECHNICIAN

D.O.T. Code 823.281-010

Avionics technicians inspect and repair aircraft communication, navigation, and flight control systems. They may test and replace defective instruments. Technicians use electricians' tools, circuit analyzers, oscilloscopes, and other testing devices.

Working Conditions

Many avionics technicians have work schedules that include shifts, weekends, and holidays. To cope with any emergency that may arise, these workers are subject to 24-hour call. They may have to stand for long periods, climb ladders, and do some reaching, stooping, and light lifting. They also must take precautions to avoid electrical shocks.

Physical Requirements

Good eye-hand coordination

Manual dexterity

Good hearing and color vision

Mechanical aptitude

Helpful School Subjects

Radio Shop

Electronics

English

Math

Physics

Licensing Requirements

Federal Communications Commission (FCC) licensing required.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two and one-half years. Post-high school training required. Frequent retraining required. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Radio Mechanics in 1986 was 54. Employment is estimated to be 62 in 1995. Montana projections show there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $8.50 per hour.

BAKER

D.O.T. Code 526.381-010

Bakers make rolls, cakes, breads, cookies, muffins, pies, biscuits, and desserts from recipes. They measure ingredients with spoons and measuring cups and mix ingredients with electric mixers or by hand. Bakers place this shaped dough in greased and floured pans. Bread dough has to rise before being placed in an oven. Some pastry dough is baked immediately. Breads and pastries are placed in and removed from the oven using a peel (a long-handled spade shaped tool). Bakers are skilled in regulating oven temperatures to produce perfect breads and pastries.

Working Conditions

The size and equipment of kitchens depends on the quantity of breads and pastries being prepared and the laws that govern these operations. Most kitchens are conventional in equipment and work space and are air-conditioned because of work near hot ovens. Bakers may work early and late hours, holidays, and weekends. They are required to stand most of the time and to lift heavy bowls and boxes of ingredients. Bakers are prone to falls, burns, and cuts, but these injuries are usually not too serious.

Physical Requirements

Good health

Good sense of taste and smell

Able to lift and carry heavy weights

Free of communicable diseases

Clean and neat appearance

Helpful School Subjects

Food Service

Chemistry

Home Economics

Speech

Math

English

Bacteriology

Retailing

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the Bakers and Confectionery Workers International of America.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Irregular hours. Most jobs in metropolitan areas. Total employment likely to decline because of mechanization. Buttrey Food Stores conducts a statewide program operated by local stores. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 18 active apprentices in Montana in 1989. The employment level for Bakers, Bread and Pastry in 1986 was 518. Employment is estimated to be 604 in 1995. Montana projections show there will be 32 annual average openings to 1995; 10 of these openings will be due to growth and 22 due to separation. Average wage in 1989 for journeyworkers was about $9.70 per hour.

BEEKEEPER

D.O.T. Code 413.161-010

Beekeepers raise bees to produce honey and pollinate crops. They assemble beehives and introduce bees into the hives, then set the hives near a source of nectar and pollen. Using smoke pots or carbolic acid pads, they force bees from hives periodically to inspect, remove parasites and vermin, and to harvest honeycombs and royal jelly from queen bee cells. They extract honey from honeycombs and arrange for its sale. Some may cultivate bees to produce bee colonies and queen bees for sale.

Working Conditions

Beekeepers spend much of their time outdoors inspecting hives and harvesting honey. They wear protective clothing and masks to protect themselves from swarming bees.

Physical Requirements

Good health

Manual dexterity

Able to work standing, stooping, bending

for long periods

Helpful School Subjects

Agriculture

Biology

Marketing

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. Most beekeepers are self-employed. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana In 1989. The employment level for All Other Agricultural, Forestry, Fishing, and Related Workers in 1986 was 506. Employment is estimated to be 559 in 1995. Montana projections show there will be 24 annual average openings to 1995; six of these openings will be due to growth and 18 due to separation. Average wage in 1989 for journeyworkers was about $9.50 per hour.

BOAT REPAIRER

D.O.T. Code 807.361-014

Boat repairers repair wooden and fiberglass boats. They use saws, joiners, planers, and shapers to make replacement parts according to measurements they take. They install new parts using handtools and power tools, smooth repaired surfaces, and paint, wax, and buff repaired areas to specified finish.

Working Conditions

Boat repairers usually work in repair shops that are well-lighted and ventilated. Repairers often work in awkward or cramped positions and much of their work is strenuous. Hazards include cuts from sharp metal edges, burns from torches and heated metal, and injuries from power tools. They may be exposed to fumes from paints and stains.

Physical Requirements

General good health

Stamina

Good eye-hand coordination

Good color perception

Ability to lift up to 75 pounds

Ability to work in a closed space

with fumes

Helpful School Subjects

Metalworking

Auto Mechanics

Drafting

Metallurgy

Math

Welding

Painting

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two and one-half years. Must be at least 17 years old. Hobbies dealing with boating may increase employment opportunities. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for All Other Mechanics, Installers, and Repairers in 1986 was 665. Employment is estimated to be 751 in 1995. Montana projections show there will be 42 annual average openings to 1995; 10 of these openings will be due to growth and 32 due to separation. Average wage in 1989 for journeyworkers was about $6.00 per hour.

BOILERMAKER

D.O.T. Code 805.261-014

Boilermakers follow blueprints and templates in marking off lines, curves, holes, and dimensions on metal plates and tubes used to make various parts of a boiler, vat, or tank. Markings must be planned and measured carefully, allowing for the curvature and thickness of the metal. Because errors in size or shape may be difficult or impossible to correct after the metal is cut, these workers use instruments, such as compasses, protractors, gauges, and scales to make precise measurements. They check to see that parts line up according to blueprints. They assemble and erect the vessels using rigging equipment, and then weld or rivet the parts together.

Working Conditions

Boilermakers often use potentially dangerous equipment, such as acetylene torches and power grinders, and handle heavy materials. Work may be done in cramped quarters inside boilers, vats, or tanks that are often damp and poorly ventilated. This occupation is more hazardous than many other metalworking occupations because workers occasionally work at great heights on top of large vessels. Many workers wear protective equipment. To meet construction or production deadlines, they occasionally have to work nights or weekends.

Physical Requirements

Good health

Mechanical aptitude

Manual dexterity

Helpful School Subjects

Metal Shop

Blueprint Reading

Machine Metalworking

Welding

Math

Licensing Requirements

For licensing information, write or call the Dept. of Labor and Industry, Division of Workers' Compensation, Safety Bureau, P.O. Box 4759, Helena, Montana 59604; phone number (406) 444-6401.

Union Affiliation

May or may not be affiliated with the International Brotherhood of Boilermakers, Iron Shipbuilders, Blacksmiths, Forgers and Helpers.

Additional Information

Length of this apprenticeship program is four years. High school or vo-tech graduation required and 18 years of age preferred. May require aptitude test. Ability to work in cramped quarters and in high places. Employment nationally concentrated in highly industrialized areas. Both apprentices and journeyworkers often have to travel from one area to another for work. Most boilermakers in the state have union affiliation. The Missouri River Basin Area Boilermakers Apprenticeship Program manages an apprenticeship program in Montana. Their address is P.O. Box 160, Excelsior Springs, MO 64024. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were four active apprentices in Montana in 1989. The employment level for Boilermakers in 1986 was 31. Employment is estimated to be 30 in 1995. Montana projections show there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $18.00 per hour.

BOOKBINDER

D.O.T. Code 977.381-010

Bookbinders transform printed sheets into finished products such as books, magazines, catalogs, folders, or directories. Binding involves operations such as folding, gathering, gluing, stitching, trimming, sewing, and wrapping. They assemble books from large, flat, printed sheets of paper, shape the book bodies with presses and trimming machines, and reinforce them with glued fabric strips. Covers are glued or pasted onto the book bodies, and then the books undergo a variety of finishing operations. Machines are used extensively throughout the process. Bookbinding workers seldom perform all the different binding tasks, although some have training in all of them.

Working Conditions

This job can be fairly strenuous, as bindery workers do considerable lifting, standing, and carrying. Bindery work may also require stooping, kneeling, and crouching. Binderies are often noisy.

Physical Requirements

Mechanical aptitude

Manual dexterity

Good eye-hand coordination

Finger dexterity

Helpful School Subjects

Shop courses

Electronics

English

Photography

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Typographical Union (AFL-CIO) or the Graphic Arts International Union.

Additional Information

Length of this apprenticeship program is three years. Prefer high school or vo-tech graduate and at least 17 years old. Employment concentrated in large printing centers, such as New York City, Chicago, Washington, DC, and Los Angeles. Increased mechanization limits occupational growth. Limited employment opportunities in Montana. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Bookbinders in 1986 was 11. Employment is estimated to be 12 in 1995. Montana projections show there will be two annual average openings to 1995; none of these openings will be due to growth and two due to separation. Average wage in 1989 for journeyworkers was about $12.15 per hour.

BRICKLAYER

D.O.T. Code 861.381-018

Bricklayers use building materials such as brick, structural tile, concrete cinder, glass, gypsum, and terra-cotta block (except stone) to construct walls, partitions, fireplaces, and other structures. Bricklayers primarily use handtools, including trowels, brick and stone hammers, wooden or rubber mallets, and chisels. In putting up a wall, they must use care in determining the vertical and horizontal alignment of the course. For this reason, bricklayers use a level or plumb line. They cut bricks with a hammer and chisel to fit around windows, doors, and other openings.

Working Conditions

As a rule, bricklayers work outdoors. They stand, kneel, or stoop for long periods of time, sometimes in limited quarters. They may have to lift heavy objects and are subject to injury from tools and falls from scaffolds. Extensive travel to job sites may be necessary to get suitable employment. Pay is above average.

Physical Requirements

Good health

Able to do heavy lifting

Able to work standing and stooping for prolonged periods

Good sense of balance

Helpful School Subjects

Welding

Mechanical Drawing

Blueprint Reading

Shop Courses

Math

English

Sketching

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Union of Bricklayers and Stonemasons.

Additional Information

Length of this apprenticeship program is three years. Must be at least 17 years old. JATC requires aptitude test and high school diploma or equivalent. Many are self-employed. Employment opportunities vary from year to year with the building industry. Most work available in spring and summer. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were three active apprentices in Montana in 1989. The employment level for Brick Masons in 1986 was 94. Employment is estimated to be 106 in 1995. Montana projections show there will be four annual average openings to 1995; one of these openings will be due to growth and three due to separation. Average wage in 1989 for journeyworkers was about $16.00 per hour.

BUTCHER/MEAT CUTTER

D.O.T. Codes 525.381-014, 316.684-018

Butchers and meat cutters divide poultry, meat, and fish into rounds, ribs, roasts, steaks, and chops with saws and knives. Bony pieces of meat are separated by hand saws, while boneless cuts are divided with slicers and power cutters. Butchers use the leftover trimmings to make ground beef and sausage. They may wait on customers and stock refrigerated meat cases.

Working Conditions

Cold temperatures prevent meat from spoiling. These low temperatures and the need to stand for long periods of time require butchers and meat cutters to have physical stamina. They lift heavy pieces of meat, so physical strength is necessary. Extra caution should be taken when operating power cutters and slicers.

Physical Requirements

Stamina

Good color discretion

General good health

Agility, strong back

Free of communicable diseases

Good manual dexterity

Good eye-hand coordination

Helpful School Subjects

Speech

Metal Shop

English

Retail Merchandising

Marketing

Biology

Typing

Math

Zoology

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the United Food and Commercial Workers International Union.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Able to work in low temperatures for long periods on feet. Must usually pass a meat cutting test to become a journeyworker. Buttrey Food Stores conducts a statewide program operated by local stores. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 23 active apprentices in Montana in 1989. The employment level for Butchers and Meatcutters in 1986 was 569. Employment is estimated to be 667 in 1995. Montana projections show there will be 29 annual average openings to 1995; 11 of these openings will be due to growth and 18 due to separation. Average wage in 1989 for journeyworkers was about $10.50 per hour.

CABINETMAKER

D.O.T. Code 660.280-010

Cabinetmakers set up and operate a variety of hand and power tools to make and repair wooden cabinets and high grade furniture. Working from plans or blueprints, they plan the sequence of cutting or shaping operations to be performed. They set up and operate woodworking machines such as power saws, jointers, routers, molders, and shapers. Cabinetmakers use dowels, nails, and glue to assemble units. They may have to prepare surfaces for finish and install hardware such as hinges and latches.

Working Conditions

Most cabinetwork is done in shops, then delivered to the job site. The work is not as physically demanding as most construction jobs. Wood dust or fumes may sometimes require wearing protective gear. The use of power tools creates some hazard, but ordinary safety practices usually keep injuries to a minimum.

Physical Requirements

Finger dexterity

Good eye-hand coordination

Stamina, agility

No sinus or other allergic conditions

Helpful School Subjects

Wood Shop

Mechanical Drawing

Metal Shop

Blueprint Reading

Welding

Math

English

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the United Brotherhood of Carpenters and Joiners of America.

Additional Information

Length of this apprenticeship program is four years. JATC requires at least 17 years old, aptitude test, high school diploma. Ability to lift weights from 20-100 pounds. Ability to tolerate noise, wood dust, and machine vibrations. Most provide own handtools. The increasing use of prefabricated cabinets partially made with automated machines may limit the need for cabinetmakers. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Cabinetmakers and Bench Carpenters in 1986 was 250. Employment is estimated to be 299 in 1995. Montana projections show there will be 12 annual average openings to 1995; five of these openings will be due to growth and seven due to separation. Average wage in 1989 for journeyworkers was about $9.00 per hour.

CABLE SPLICER/CABLE TESTER (TELEPHONE)

D.O.T. Code 829.361-010

Cable splicers/testers complete telephone line connections. They spend much of their time maintaining and repairing telephone lines. Splicers connect individual wires or fibers within the cable and rearrange wires when lines have to be changed. They must read and interpret service orders and circuit diagrams to determine the proper splicing specifications. Splices are then made by twisting, soldering, or joining wires and cables with small handtools, epoxy, and mechanical equipment.

Working Conditions

Cable splicers/testers usually work outdoors in all kinds of weather. They must do a lot of climbing and lifting, and often work in stooped and cramped positions. They must wear safety equipment when entering manholes. They may be exposed to hazardous chemicals from the solvents and plugging compounds that they use when splicing cables. These workers are subject to 24-hour call. At times they may be called upon to work long and irregular hours to restore service. They may travel to distant locations and occasionally stay for a lengthy period to help restore damaged facilities or build new ones.

Physical Requirements

Manual dexterity

Excellent health

Good vision, good color perception

Acute hearing

Able to lift heavy weights

Helpful School Subjects

Electrical Theory

Math

Physical Education

Electronics

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old required. JATC requires aptitude test. One year high school Algebra preferred. Work on poles, on aerial ladders and platforms, in manholes, or in basements of large buildings. Requires constant retraining. May work long and irregular hours. Inexperienced workers often hired and trained. May be part of line installer and repairer crew. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Telephone and Cable TV Installers in 1986 was 287. Employment is estimated to be 280 in 1995. Montana projections show there will be 1 annual average opening to 1995; none of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $15.40 per hour.

CABLE TELEVISION INSTALLER

D.O.T. Code 821.281-010

Cable television installers install lines for cable television in customers' homes. They measure the strength of the television signal at utility poles using electronic testing equipment. They install terminal boxes and string lead-in wires, using electrician tools. Installers connect television sets to the antenna system and test the incoming signal. They then adjust and repair the antenna system to insure optimum television signal reception.

Working Conditions

Cable television installers work in customers' homes. They may have to climb ladders and do some reaching, stooping, and light lifting. They must take precautions to avoid electrical shocks.

Physical Requirements

Ability to climb, balance, stoop, lift, and kneel

Good eyesight

Good use of hands and arms

Mechanical aptitude

Helpful School Subjects

Electronics

Math

Public Speaking

Blueprint Reading

Shop

Physics

Chemistry

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is one year. Prefer high school graduate. Experience preferred in Electronics or Applied Electricity. Periodic retraining required. Valid driver's license required. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Telephone and Cable TV Installers and Repairers in 1986 was 287. Employment is estimated to be 280 in 1995. Montana projections show there will be one annual average opening to 1995; this opening will be due to separation. Average wage in 1989 for journeyworkers was about $8.50 per hour.

CARPENTER

D.O.T. Code 860.381-022

Carpenters use a variety of power and handtools to construct many wooden projects. Carpenters are usually classified as rough or finish. Rough carpenters are less skilled. Their duties are more basic, such as building forms, erecting scaffolding, framing houses, or general assembling of bridges and trestles. Finish carpenters may work from blueprints and their work is more exact. Jobs such as installing trim, doing cabinetwork, hanging doors, or installing hardwood floors usually qualify one as a finish carpenter. Carpenters have a knowledge of strength and usefulness of materials.

Working Conditions

Prolonged standing, squatting, or climbing may be strenuous. There is a risk of injury from slips, falls, the use of power tools, and contact with sharp objects. Weather conditions may sometimes be extreme. Travel away from home may be a necessary factor in getting employment.

Physical Requirements

Good health

Finger dexterity

Stamina, good balance

Normal vision, good eye-hand coordination

No sinus or other allergy problems

Ability to work in high places

Able to lift weights

Helpful School Subjects

Wood Shop

Mechanical Drawing

Metal Shop

Blueprint Reading

Math

Welding

English

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the United Brotherhood of Carpenters and Joiners of America.

Additional Information

Length of this apprenticeship program is four years. High school or vo-tech graduation. JATC requires at least 17 years old and aptitude test. Most provide own handtools. Specialization more common in large metropolitan areas. May also install insulation. Extra credit is given in considering applicants for apprenticeship for courses in math, science, shop, and blueprint reading. Many carpenters are self-employed. Good math ability. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 43 active apprentices in Montana in 1989. The employment level for Carpenters in 1986 was 2166. Employment is estimated to be 2723 in 1995. Montana projections show there will be 147 annual average openings to 1995; 62 of these openings will be due to growth and 85 due to separation. Average wage in 1989 for journeyworkers was about $13.50 per hour.

CARPET LAYER

D.O.T. Code 864.364-010

Carpet layers install carpets or rugs in homes, offices, stores, restaurants, and other buildings. Installers inspect the floor to determine its condition and, if necessary, correct any imperfections that could show through the carpet. Then they plan the layout of the carpet, allowing for expected traffic patterns and placing seams for best appearance and long wear. Carpet layers use common handtools, such as hammers, drills, staple guns, and rubber mallets. They also use carpet-laying tools, such as carpet knives, knee kickers, and power stretchers.

Working Conditions

Carpet layers work under better conditions than most other construction workers. Because carpets are installed in finished or almost finished structures, work areas usually are clean, lighted, safe, and comfortable. When recarpeting stores or offices, they may work evenings and weekends to avoid disturbing customers or employees. Installers kneel, reach, bend, stretch, and frequently lift heavy rolls of carpet. Despite continual movement and frequent use of hand and power tools, installers experience fewer injuries than most other construction workers.

Physical Requirements

Strong back, legs, and knees

Ability to carry heavy weights

Mechanically inclined

Helpful School Subjects

Mechanical Drawing

Shop Courses

Math

English

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Trade hazards include knee ailments and rheumatism. Many are self-employed. Often requires a valid driver's license. Most employment opportunities are in large cities. May require travel. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Carpet Installers in 1986 was 48. Employment is estimated to be 63 in 1995. Montana projections show there will be 3 annual average openings to 1995; one of these openings will be due to growth and two due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

CEMENT MASON

D.O.T. Code 844.364-010

Cement masons place and finish concrete on any number of projects. Projects may be small jobs, such as patios or sidewalks, or may entail miles of concrete highways. They are usually responsible for the preparation work, such as building forms, making sure the depth and pitch are correct, and preparing the sub-base. Masons direct the placing of the concrete and supervise laborers who shovel and spread the concrete. Cement masons must know materials and the effect outside factors such as chemical additives or temperature will have on a finished project.

Working Conditions

Most concrete work is done at ground level, so workers are required to stoop, bend, and kneel. Many workers wear knee pads to protect their knees from uncured concrete. Many jobs are done outdoors, so work is usually halted during rain and weather bringing freezing temperatures.

Physical Requirements

Good physical condition

Able to work long hours stooping, bending, and kneeling

Helpful School Subjects

Blueprint Reading

Mechanical Drawing

Math

Shop

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the Operative Plasterers' and Cement Masons' International Association.

Additional Information

Length of this apprenticeship program is two years. Prefer at least 18 years old. High school diploma or equivalent preferred. Many are self-employed. Many specialize. Many work as construction laborers (such as hod carriers) before becoming masons. Often need valid driver's license. Job opportunities vary with the building industry but cement is a popular building material. May require travel to job sites in the state or region. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Concrete and Terrazzo Finishers in 1986 was 325. Employment is estimated to be 392 in 1995. Montana projections show there will be 9 annual average openings to 1995; seven of these openings will be due to growth and two due to separation. Average wage in 1989 for journeyworkers was about $13.50 per hour.

CENTRAL OFFICE INSTALLER/REPAIRER

D.O.T. Codes 822.361-014, 822.281-014

Telephone central office repairers install, maintain, and repair the complex equipment in telephone companies' central offices. Most specialize in one of three areas. Frame wirers connect and disconnect wires that run from telephone lines and cables to equipment in central offices. Central office repairers maintain the switching equipment that automatically connects lines when customers dial numbers. Trouble locators work at special switchboards to find the source of a problem when customers report trouble with their telephones. In small telephone companies, repairers must perform all three of these jobs.

Working Conditions

Many central office workers have work schedules that include shifts, weekends, and holidays. To cope with any emergency that may arise, they are subject to 24-hour call. Central office workers generally work in clean, well-lighted, air-conditioned surroundings. Because older central office equipment continually produces sounds, these workers must learn to "block out" noise. Many workers wear earplugs to help them do this.

Physical Requirements

Manual dexterity

Excellent health

Good vision, good color perception

Acute hearing

Able to lift heavy weights

Helpful School Subjects

Electrical Theory

Math

Physical Education

Electronics

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent required and at least 18 years old preferred. JATC requires aptitude test. One year high school Algebra preferred. Able to work in high places and below ground in cramped positions. Requires constant retraining. May work long and irregular hours. Inexperienced workers often hired and trained. May be part of line installer and repairer crew. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were nine active apprentices in Montana in 1989. The employment level for Central Office and PBX Installers in 1986 was 231. Employment is estimated to be 248 in 1995. Montana projections show there will be five annual average openings to 1995; two of these openings will be due to growth and three due to separation. The employment level for Frame Wirers, Central Office in 1986 was 18. Employment is estimated to be 15 in 1995. Montana projections show there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $16.36 per hour.

CHEF/COOK

D.O.T. Codes 313.131-014, 313.361-014

Chefs and cooks are primarily responsible for the reputation a restaurant has. Their duties depend on the type and size of a restaurant. In a small restaurant, one chef or cook prepares all the food. Larger restaurants employ many chefs. Each chef is usually responsible for a specific area--for example, a fry cook. Head cooks coordinate and supervise the kitchen staff, plan menus, and purchase supplies.

Working Conditions

The size and equipment of kitchens depend on the size of the restaurant, the quantity of food prepared, and the laws that govern those operations. Most kitchens are conventional in equipment and work space and are air-conditioned because of work near hot stoves and ovens. Chefs and cooks may work late hours, holidays, and weekends. They must stand most of the time and lift heavy kettles and pots. Cooks employed in private and public schools usually only work nine to 10 months or during the school year. Chefs and cooks are prone to falls, burns, and cuts, but these injuries are not usually too serious.

Physical Requirements

Good general health

Cleanliness

Keen sense of taste and smell

Physical stamina

Free from communicable disease

Helpful School Subjects

Business Math

Biology

Business Administration

English

Home Economics

Commercial Food Preparation

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the Hotel and Restaurant Employees and Bartenders International Union.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Must be able to work fast and under pressure. Often work irregular hours. Institutions serving the expanding elderly population expect high employment growth. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were five active apprentices in Montana in 1989. The employment level for Cooks, Restaurant in 1986 was 2603. Employment is estimated to be 3119 in 1995. Montana projections show there will be 170 annual average openings to 1995; 57 of these openings will be due to growth and 113 due to separation. The employment level for Cooks, Institution or Cafeteria in 1986 was 1317. Employment is estimated to be 1590 in 1995. Montana projections show there will be 88 annual average openings to 1995; 30 of these openings will be due to growth and 58 due to separation. The employment level for Cooks, Fast Food and Short Order in 1986 was 2178. Employment is estimated to be 2414 in 1995. Montana projections show there will be 105 annual average openings to 1995; 26 of these openings will be due to growth and 79 due to separation. Average wage in 1989 for journeyworkers was about $5.50 per hour.

COIN MACHINE SERVICE REPAIRER

D.O.T. Code 639.281-014

Coin machine service repairers check vending machines for correct operation. If a machine breaks down, they must determine the cause of trouble. A major job of these workers is preventive maintenance--avoiding trouble before it starts. They periodically clean electrical contact points, lubricate mechanical parts, and adjust machines to perform properly. Repairers use pipe cutters, soldering guns, wrenches, screwdrivers, hammers, and other handtools. In the repair shop, they may use power tools, such as grinding wheels, saws, and drills. Testing equipment is also used. Workers who repair machines that dispense food and beverages must know state and local public health and sanitation standards. They must be familiar with local plumbing and electrical codes. They also do some clerical work, such as filing reports, preparing repair cost estimates, and ordering parts.

Working Conditions

Some servicers and repairers work in company repair shops, others work in the field, but many do both. Because vending machines are operated around the clock, repairers sometimes work at night and on weekends and holidays. Vending machine repair shops usually are quiet, well-lighted, and have adequate work space. When servicing machines on location, the work may have to be done where pedestrian traffic is heavy, such as in a busy supermarket. Repair work is relatively safe, although repairers are subject to hazards such as electrical shocks and cuts from sharp tools and metal objects. They also must know and follow safety procedures.

Physical Requirements

Mechanical ability

Finger dexterity

Helpful School Subjects

Applied Electrical Shop	Physics
Public Speaking	Math
Mechanical Drawing	Welding
Metal Shop	English

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma and at least 18 years old preferred. May require an aptitude test. Need a record of honesty and respect for the law. Often need a commercial driver's license and good driving record. Varied working hours. Frequent retraining required. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Coin and Vending Machine Servicers in 1986 was 68. Employment is estimated to be 79 in 1995. Montana projections show there will be four annual average openings to 1995; one of these openings will be due to growth and three due to separation. Average wage in 1989 for journeyworkers was about $8.00 per hour.

COMPUTER OPERATOR

D.O.T. Code 213.382-010

Computer operators operate on-line and off-line computer equipment which varies with the size of the installation. Operators set controls on the computer and on peripheral devices required to run a particular job. They load equipment with tapes, disks, and paper as needed. They check the computer console and respond to operating and computer messages. If an error message occurs, operators must locate the problem and solve it or end the program. They prepare and distribute printouts to users and maintain log books.

Working Conditions

Computer operators work in rooms that are well lighted and well ventilated. When the equipment is operating, however, the computer room can be noisy. Computer operators are sometimes required to work evening or night shifts and weekends because many organizations use their computers 24 hours a day, seven days a week.

Physical Requirements

Good general health

Physical stamina

Manual dexterity

Helpful School Subjects

Computer Science

Data Processing

Typing

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. High school diploma or equivalent and at least 18 years old preferred. Ability to follow detailed and organized procedures. May have to work irregular hours. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Computer Operators, Except Peripheral Equipment in 1986 was 720. Employment is estimated to be 885 in 1995. Montana projections show there will be 24 annual average openings to 1995; 18 of these openings will be due to growth and six due to separation. The employment level for Peripheral EDP Equipment Operators in 1986 was 110. Employment is estimated to be 131 in 1995. Montana projections show there will be three annual average openings to 1995; two of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $8.00 per hour.

COMPUTER PROGRAMMER

D.O.T. Code 020.167-022

Computer programmers write detailed instructions (programs) that list in a logical order the steps that a computer must follow to organize data, solve a problem, or do some other task. They work from descriptions that contain a detailed list of the steps the computer has to follow, then code the actual instructions in a programming language. Programmers test the program by running it to be sure the instructions are correct and will produce the desired information. Computer operators prepare sample data that will test every part of the program, then make corrections as necessary.

Working Conditions

Programmers work in offices in comfortable surroundings. They usually work 40 hours a week, but not always from 9 to 5. Programmers may report early or work late to use the computer when it is available. They occasionally work on weekends to meet deadlines.

Physical Requirements

Ability to organize ideas and data

Above average numerical ability and clerical perception

Helpful School Subjects

Math	Science
Computer Sclence	Programming
English	Business

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. High school diploma or equivalent required and at least 18 years old preferred. Some night or weekend work may be necessary. Continuous retraining necessary. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Computer Programmers and Aides in 1986 was 668. Employment is estimated to be 890 in 1995. Montana projections show there will be 52 annual average openings to 1995; 25 of these openings will be due to growth and 27 due to separation. Average wage in 1989 for journeyworkers was about $15.00 per hour.

CONSTRUCTION EQUIPMENT MECHANIC

D.O.T. Code 620.261-022

Construction equipment mechanics work on large equipment such as cranes, bulldozers, graders, and conveyors. Construction, logging, and surface mining businesses use this equipment. Businesses cannot afford to have their machinery broken down for very long. Therefore, mobile heavy equipment mechanics must be able to determine the problem quickly and fix it effectively. They use a variety of tools in their work, such as common handtools and power tools, and a variety of testing equipment.

Working Conditions

Many construction equipment mechanics work mostly indoors in shops, but others work as field service mechanics and spend much of their time away from the shop working outdoors. Mechanics handle greasy and dirty parts and often work in awkward or cramped positions. They frequently must lift heavy tools and parts. Mechanics are subject to burns, bruises, and cuts from hot engine parts and sharp edges of machinery.

Physical Requirements

Good physical condition

Able to lift heavy weights

Good manual dexterity

Helpful School Subjects

Blueprint Reading

Machine Shop

Auto Mechanics

Mechanical Drawing

Math

Chemistry

Physics

Welding

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Association of Machinists and Aerospace Workers or the International Brotherhood of Operating Engineers.

Additional Information

Length of this apprenticeship program is four years. High school or vo-tech graduate and at least 18 years old preferred. Most provide own handtools. Tools cost between $3,000 and $4,000. Vo-Tech or automobile mechanic experience preferred. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Mobile Heavy Equipment Mechanics in 1986 was 573. Employment is estimated to be 665 in 1995. Montana projections show there will be 28 annual average openings to 1995; 10 of these openings will be due to growth and 18 due to separation. Average wage in 1989 for journeyworkers was about $15.20 per hour.

DENTAL ASSISTANT

D.O.T. Code 079.371-010

Dental assistants work at chairside as dentists examine and treat patients. In some dental offices, assistants perform clerical and laboratory duties as well. The assistant makes the patient as comfortable as possible in the dental chair, prepares them for treatment, and gets dental records. The assistant hands the dentist the proper instruments and materials, and keeps the patient's mouth dry and clear by using suction or other devices. Assistants sterilize and disinfect instruments and equipment, prepare tray setups for dental procedures, provide post-operative instruction, and instruct patients in oral health care.

Working Conditions

Dental assistants work in a well-lighted, clean environment. Handling radiographic equipment poses dangers, but the hazards are minimized by proper use of lead shielding and safety procedures. They work in either a standing or sitting position. They must be a dentist's "third hand." Therefore, assistants should exhibit some manual dexterity and be able to deal with people who may be under considerable stress.

Physical Requirements

Good eye-hand coordination

Good health

Personable

Helpful School Subjects

Accounting

Typing

English

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is one year. High school diploma or equivalent and at least 18 years old preferred. Requires exactness and precision for detail. Office setting, working closely with people. Certification to do x-rays should enhance employment chances. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were four active apprentices in Montana in 1989. The employment level for Dental Assistants in 1986 was 574. Employment is estimated to be 720 in 1995. Montana projections show there will be 18 annual average openings to 1995; 16 of these openings will be due to growth and two due to separation. Average wage in 1989 for journeyworkers was about $6.50 per hour.

DENTAL LABORATORY TECHNICIAN

D.O.T. Code 721.381-018

Dental laboratory technicians are skilled craft workers who make and repair a wide variety of dental restorations and appliances. These include dentures, partial dentures, bridges, crowns, and orthodontic appliances. All work is done according to written prescriptions submitted by a dentist. They make appliances from acrylics, ceramics, composites, and metals. They use models of dental stone or plaster pourings made from impressions of a patient's teeth or mouth taken by a dentist. Technicians use small hand instruments such as wax spatulas and wax carvers. They also use special electric lathes and high-speed drills, high-heat furnaces, metal-melting torches, and other specialized laboratory equipment.

Working Conditions

Dental technicians work in typical laboratory surroundings. Work areas are generally clean, well lighted, and well ventilated. Technicians usually have their own workbenches equipped with Bunsen burners, grinding and polishing machines, and various handtools. Noise levels may be considerable where many power tools are operating. The work is not strenuous, but there may be pressure to meet dentists' deadlines.

Physical Requirements

Good eyesight

Excellent manual dexterity

Good color discretion

Good motor coordination

Helpful School Subjects

English

Art

Chemistry

Physics

Metal Shop

Biology

Algebra

Geometry

Anatomy

Crafts

Licensing Requirements

Only denturists have to be licensed in Montana. For information, write or call the Montana Board of Denturity, 1424 Ninth Avenue, Helena, Montana 59620; phone (406) 444-5433.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. High school diploma or equivalent and at least 18 years old preferred. Requires patience and aptitude for detailed work. Written and practical exams for certified dental technicians are controlled by the National Board for Certification or the National Association of Dental Laboratories. Ceramics, jewelry, and other art classes may help develop manual and finger dexterity necessary for technicians. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Dental Laboratory Technicians in 1986 was 52. Employment is estimated to be 67 in 1995. Montana projections show there will be three annual average openings to 1995; two of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $9.00 per hour.

DIESEL ENGINE MECHANIC

D.O.T. Code 625.281-010

Diesel engine mechanics repair and maintain diesel engines that power transportation equipment, such as heavy trucks, buses, and locomotives; construction equipment such as bulldozers, cranes, and road graders; and farm equipment such as tractors and combines. In many repair shops, mechanics do all kinds of repair work. They use a variety of tools in their work, such as pneumatic wrenches, machine tools, welding and flame-cutting equipment, common handtools, jacks, and hoists. They also use a variety of testing equipment.

Working Conditions

Diesel engine mechanics usually work indoors, although they may occasionally work or make repairs on the road. They are subject to the usual shop hazards such as cuts and bruises. Mechanics handle greasy and dirty parts and may stand or lie in awkward or cramped positions to repair vehicles and equipment. Work areas are usually well lighted, heated, and ventilated.

Physical Requirements

Good physical condition

Able to lift heavy weights

Good manual dexterity

Helpful School Subjects

Auto Mechanics

Mechanical Drawing

Blueprint Reading

Basic Electricity

Physics

Welding

Math

Machine Shop

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Association of Machinists and Aerospace Workers.

Additional Information

Length of this apprenticeship program is four years. High school or vo-tech graduate and at least 18 years old preferred. Workers usually provide own handtools. Vo-tech or automobile mechanic experience preferred. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 14 active apprentices in Montana in 1989. The employment level for Bus and Truck Mechanics, and Diesel Engine Specialists in 1986 was 1036. Employment is estimated to be 1177 in 1995. Montana projections show there will be 40 annual average openings to 1995; 16 of these openings will be due to growth and 24 due to separation. Average wage in 1989 for journeyworkers was about $13.45 per hour.

DRAFTER

D.O.T. Codes 001.261-010, 005.281-014, 007.281-010, 017.261-018

Drafters compose detailed drawings for engineers, architects, designers, and scientists. These drawings show exact specifications and dimensions of all views of an object. Drafters may also figure quality, cost, strength, and quantity of materials to be used. They decide procedures and instructions to be followed. Classification of drafters is according to their work and level of responsibility. Detailers give dimensions and materials for each part on the layout. They also check to make sure that the drawing is complete and correct. Structural drafters and architectural drafters prepare layouts from architects' and engineers' preliminary plans. Mechanical drafters prepare layouts of machinery and mechanical devices.

Working Conditions

Most drafters work in well-ventilated and well-lighted rooms. The work is very detailed and they must sit for long periods of time. For these reasons, some drafters may suffer from backaches and eye strain.

Physical Requirements

Finger dexterity

Good eyesight

Helpful School Subjects

Mechanical Drawing	Art
Physical Sciences	Math
English	Graphics
Blueprint Reading	Drafting

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of apprenticeship programs is four years. High school diploma or equivalent and at least 18 years old preferred. Need ability to visualize and draw three dimensional objects. Many employers require post-secondary technical education. Employment varies with building industry. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Drafters in 1986 was 459. Employment is estimated to be 531 in 1995. Montana projections show there will be 11 annual average openings to 1995; eight of these openings will be due to growth and three due to separation. Average wage in 1989 for journeyworkers was about $9.00 per hour.

DRYWALL APPLICATOR/TAPER

D.O.T. Code 842.664-010

Drywall applicators fasten drywall panels to the framework inside houses and other buildings. Finishers, or tapers, prepare panels for painting by taping and finishing joints and imperfections. Lathers apply metal or gypsum lath to walls, ceilings, or ornamental frameworks to form the support base for plaster coatings. These workers use handtools, automatic taping tools, sanders, and spray guns.

Working Conditions

As in other construction trades, drywall work sometimes is strenuous. Applicators, tapers, and lathers spend most of the day on their feet, either standing, bending, or kneeling. Some finishers use stilts to tape and finish ceiling and angle joints. Installers have to lift and maneuver heavy panels. Hazards include the chance of falls from ladders and scaffolds, and injuries from power tools. Some finishers wear masks for protection because sanding joint compound to a smooth finish may create a lot of dust.

Physical Requirements

Good physical condition

Stamina

Helpful School Subjects

Carpentry

Arithmetic

Blueprint Reading

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Painters and Allied Trades.

Additional Information

Length of this apprenticeship program is two years. High school diploma or equivalent and at least 18 years old preferred. Most job openings are in metropolitan areas. Work is seasonal. Travel to different sites in state or region may be necessary. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Drywall Installers in 1986 was 60. Employment is estimated to be 70 in 1995. Montana projections show there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $13.50 per hour.

ELECTRICAL APPLIANCE SERVICER

D.O.T. Code 827.261-010

Electric appliance servicers work on such labor-saving appliances as microwave ovens, washers and dryers, dishwashers, and electric ranges. Repairers usually specialize in servicing either portable appliances, such as toasters and vacuum cleaners, or major appliances such as refrigerators, freezers, washers, and dryers. To determine why an appliance is not working properly, repairers inspect it while in operation to detect unusual noises, overheating, or excess vibration. They then make the necessary adjustments or part replacements to put the appliance into operating condition.

Working Conditions

Repair shops are usually quiet, well lighted and adequately ventilated. Outside the shop, the repairer may sometimes work in narrow spaces and uncomfortable positions amid dirt and dust. Those who repair appliances in homes may spend several hours a day driving.

Physical Requirements

Ability to climb, balance, stoop,

lift, and kneel

Good eyesight

Good use of hands and arms

Mechanical aptitude

Helpful School Subjects

Electronics

Math

Public Speaking

Blueprint Reading

Shop

Physics

Chemistry

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. Prefer high school or vo-tech graduate. Experience preferred in Electronics or Applied Electricity. Periodic retraining required. Valid driver's license required. Worker provides own set of tools. May require some weekend work. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were four active apprentices in Montana in 1989. The employment level for Electric Home Appliance and Power Tool Repairers in 1986 was 166. Employment is estimated to be 201 in 1995. Montana projections show there will be 12 annual average openings to 1995; four of these openings will be due to growth and eight due to separation. Average wage in 1989 for journeyworkers was about $8.50 per hour.

ELECTRICAL REPAIRER

D.O.T. Code 829.281-014

Electrical repairers repair, maintain, and install electrical systems and equipment, such as motors, transformers, wiring, switches, and alarm systems. Preventive maintenance is a major responsibility of electrical repairers. Repairers check, clean, and repair equipment periodically to detect and prevent major malfunctions. Repairers use several kinds of testing devices and handtools. Special diagnostic programs that help pinpoint certain malfunctions in equipment may be used.

Working Conditions

Working conditions vary depending upon the job. In some locations, repairers are exposed to heat, grease, and noise, and may have to work in cramped spaces. Some work may be done in a repair shop in clean, well-lighted, and well-ventilated areas. Employment in many settings may entail considerable walking, kneeling, bending, and reaching to install or repair equipment. Electrical repairers usually work with little supervision.

Physical Requirements

Good eye-hand coordination

Ability to notice and compare differences in objects

Color discretion

Helpful School Subjects

Math

Blueprint Reading

Electronics

Computer Programming

Machine Shop

Physics

Drafting

English

Chemistry

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is four years. Previous work experience or post high school electrical training preferred. Frequent retraining may be necessary. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Electric Motor Repairers in 1986 was 27. Employment is estimated to be 36 in 1995. Montana projections show there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $15.00 per hour.

ELECTRICIAN

D.O.T. Code 824.261-010

Electricians plan layouts, install and repair wiring, electrical fixtures, apparatus, and control equipment. Many installations require a knowledge of blueprint reading. Various testing equipment is used to determine circuits and proper installation. Electricians may be required to furnish preliminary sketches along with cost estimates of materials for some jobs. They must have knowledge of proper material to use for different projects and electrical code requirements.

Working Conditions

Electricians usually work inside and are not exposed to the weather. It may be necessary to work in cramped quarters. There is some danger from electrical shock, but safety precautions reduce that danger to a minimum. Working from heights is necessary at times.

Physical Requirements

Able to work in high places

Good health

Agility

Manual dexterity

Good color discretion

Helpful School Subjects

Blueprint Reading	Electronics
Shop Courses	Math
Mechanical Drawing	Science
Electrical Theory	Physics

Licensing Requirements

For licensing information, write or call the Montana State Electrical Board, 1424 Ninth Avenue, Helena, Montana 59620; phone (406) 444-4390.

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is four years. High school or vo-tech graduate and at least 18 years old preferred. JATC requires aptitude test and one year of Algebra. Employment opportunities vary with building industry. Worker provides own handtools. May work irregular hours. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 70 active apprentices in Montana in 1989. The employment level for Electricians in 1986 was 1011. Employment is estimated to be 1143 in 1995. Montana projections show there will be 51 annual average openings to 1995; 15 of these openings will be due to growth and 36 due to separation. Average wage in 1989 for journeyworkers was about $16.50 per hour.

ELECTRIC METER REPAIRER (UTILITY)

D.O.T. Code 729.281-014

Electric meter repairers inspect, adjust, and repair electric meters used for recording electric current consumption. They test meters for accuracy or for correctness of assembly and may repair such electric components as instrument transformers and relays. Installation of meters may be done.

Working Conditions

Meter repairers usually work outdoors in all kinds of weather. They must do a lot of climbing and lifting, and often work in stooped and cramped positions. All of the voltages that electric meter repairers come in contact with can cause death. Safety procedures must be followed.

Physical Requirements

Able to work in high places

Good health

Agility

Manual dexterity

Good color discretion

Helpful School Subjects

Blueprint Reading

Electrical Theory

Mechanical Drawing

Shop Courses

Math

Electronics

Science

Physics

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is three years. High school or vo-tech graduate and at least 18 years old preferred. JATC requires aptitude test and one year of Algebra. Employment opportunities vary with building industry. May work irregular hours. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Electric Meter Installers/Repairers in 1986 was 107. Employment is estimated to be 122 in 1995. Montana projections show there will be 19 annual average openings to 1995; two of these openings will be due to growth and 17 due to separation. Average wage in 1989 for journeyworkers was about $15.25 per hour.

ELECTRIC MOTOR REPAIRER

D.O.T. Code 721.281-018

Electric motor repairers adjust and repair electric motors, generators, and equipment. Equipment includes starting devices and switches. Repairers follow schematic drawings. They use handtools, coil-winding machines, power tools, and test equipment.

Working Conditions

Electric motor repairers usually work in repair shops that are well-lighted and ventilated, but are sometimes noisy when motors are tested.

Physical Requirements

Mechanical aptitude

Manual dexterity

Good physical condition

Helpful School Subjects

Small Engine Repair

Auto Mechanics

Machine Shop

Science

Math

Electronics

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old preferred. Most provide own handtools. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Electric Motor Repairers in 1986 was 27. Employment is estimated to be 36 in 1995. Montana projections show there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $12.00 per hour.

ELECTROMEDICAL EQUIPMENT REPAIRER

D.O.T. Code 729.281-030

Electromedical equipment repairers install and repair medical diagnostic equipment. Equipment includes electrocardiographs, electroencephalographs, sterilizers, operating room lamps and tables, and diathermy machines. They disassemble equipment to repair or replace faulty mechanical parts, such as control lever mechanisms and water impellers. They use testing equipment and various handtools.

Working Conditions

Repair shops are usually quiet, well lighted and adequately ventilated. Work is sometimes done in medical clinics and hospitals. Outside the shop, the repairer may sometimes work in narrow spaces and uncomfortable positions.

Physical Requirements

Mechanical ability

Better than average manual dexterity

Eye-hand coordination

Ability to see detail

Helpful School Subjects

Blueprint Reading

Physics

Machine Shop

Math

Electronics

Chemistry

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent plus experience in related jobs or technical training required. Additional technical training offered at colleges and vo-techs is becoming an essential requirement. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Electromedical and Biomedical Repairers in 1986 was 26. Employment is estimated to be 32 in 1995. Montana projections show there will be five annual average openings to 1995; one of these openings will be due to growth and four due to separation. Average wage in 1989 for journeyworkers was about $13.25 per hour.

ELECTRONIC SALES AND SERVICE TECHNICIAN

D.O.T. Code 828.251-010

Electronic sales and service technicians sell, install, and repair electronic equipment used in industrial automated equipment controls. They install electric components of new equipment. Preventive maintenance is a major responsibility of electronic repairers. Technicians check, clean, and repair equipment periodically to detect and prevent major malfunctions. They use several kinds of testing devices and may run special diagnostic programs that help pinpoint certain malfunctions.

Working Conditions

Working conditions vary depending upon the job. In some locations, repairers are exposed to heat, grease, and noise. They may have to work in cramped spaces. Sometimes work is done in the electronic repair shop where surroundings are usually quiet, clean, and well lighted. Employment in many settings may entail considerable walking, kneeling, bending, and reaching to install or repair equipment. Electronics repairers usually work with little supervision.

Physical Requirements

Good eye-hand coordination

Ability to notice and compare differences in objects

Color discretion

Helpful School Subjects

Math

Blueprint Reading

Electronics

Computer Programming

Machine Shop

Physics

Drafting

English

Chemistry

Licensing Requirements

Federal Communications Commission (FCC) licensing may be required by some employers.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. Previous work experience and/or post high school Electronics Technology training preferred. Frequent retraining may be necessary. Security clearance necessary in some cases. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Electronics Repairers, Commercial and Industrial Equipment in 1986 was 84. Employment is estimated to be 92 in 1995. Montana projections show there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $8.00 per hour.

ELECTRONICS MECHANIC

D.O.T. Code 828.281-010

Electronics mechanics install and repair electronic equipment such as computers, industrial controls, radar systems, telemetering and missile control systems, transmitters, and antennas. They install electric components in new equipment. Preventive maintenance is a major responsibility of electronics mechanics. Mechanics check, clean, and repair equipment periodically to detect and prevent major malfunctions. They use several kinds of testing devices and may run special diagnostic programs that help pinpoint certain malfunctions.

Working Conditions

Working conditions vary depending upon the job. In some locations, mechanics are exposed to heat, grease, and noise. They may have to work in cramped spaces. Sometimes work is done In the electronic repair shop where surroundings are usually quiet, clean, and well lighted. Employment In many settings may entail considerable walking, kneeling, bending, and reaching to install or repair equipment. Electronics mechanics usually work with little supervision.

Physical Requirements

Excellent eyesight

Color discretion

Normal hearing

Good eye-hand coordination

Manual dexterity

Helpful School Subjects

Blueprint Reading

Computer Programming

Electrical Theory

Blueprint Reading

Electronics

Math

Chemistry

Machine Shop

Licensing Requirements

Federal Communications Commission (FCC) licensing may be required by some employers.

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is four years. One or two years of post high school training in Electronics or Electrical Engineering preferred. May require aptitude test. Hobbies involving electronics (ham or CB radios, building stereo equipment) provide experience. In some cases, applicants must obtain security clearance. Frequent retraining required. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Electronics Repairers, Commercial and Industrial Equipment in 1986 was 84. Employment is estimated to be 92 in 1995. Montana projections show there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $13.40 per hour.

ELECTRONICS TECHNICIAN

D.O.T. Code 003.161-014

Electronics technicians develop, manufacture, and service equipment and systems such as radios, radar, sonar, television, industrial and medical measuring or control devices, navigational equipment, and computers. They often use measuring and diagnostic devices to test, adjust, and repair equipment.

Working Conditions

Most electronics technicians work regular hours in laboratories, offices, electronics shops, or industrial plants. Service representatives usually spend much of their time working in customers' establishments. Some are exposed to electrical shock hazards from equipment.

Physical Requirements

Good eye-hand coordination

Ability to notice and compare differences in objects

Color discretion

Helpful School Subjects

Machine Shop

Blueprint Reading

Electronics

Computer Programming

Chemistry

Physics

Drafting

English

Math

Licensing Requirements

Federal Communications Commission (FCC) licensing may be required by some employers.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. Previous work experience and/or post high school Electronics Technology training preferred. Frequent retraining may be necessary. Security clearance necessary in some cases. Valid driver's license may be required. Travel may be necessary. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were two active apprentices in Montana in 1989. The employment level for Electrical and Electronic Technicians and Technologists in 1986 was 382. Employment is estimated to be 456 in 1995. Montana projections show there will be 16 annual average openings to 1995; eight of these openings will be due to growth and eight due to separation. Average wage in 1989 for journeyworkers was about $9.00 per hour.

ESTIMATOR AND DRAFTER

D.O.T. Code 019.261-014

Estimators and drafters draw up specifications and instructions for installation of voltage transformers, overhead or underground cables, and related electrical equipment used to conduct electricity to consumers. These workers make sketches based on measurements which affect installation of equipment. These sketches are used as instructions for installation crews. These drafters estimate labor and material costs using price lists and records from previous projects.

Working Conditions

Most of these drafters work in well-ventilated and well-lighted rooms. The work is detailed and they must sit for long periods of time. For these reasons, some may suffer from backaches and eye strain.

Physical Requirements

Finger dexterity

Good eyesight

Ability to visualize and draw three dimensional objects

Helpful School Subjects

Mechanical Drawing
Art
Math
English
Physical Sciences
Drafting
Blueprint Reading
Graphics

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old preferred. Many employers require post-secondary technical education. Employment varies with building industry. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Estimators and Drafters, Utilities in 1986 was 16. Employment is estimated to be 18 in 1995. Montana projections show there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $9.00 per hour.

FARM EQUIPMENT MECHANIC

D.O.T. Code 624.281-010

Farm equipment mechanics most often work for dealers of farming implements as service technicians. Some may assemble new implements and machinery. Sometimes body work is done, repairing dented or torn sheet metal on tractors or other machinery. Mechanics spend much of their time repairing and adjusting malfunctioning equipment that is brought to the shop. During planting and harvesting, they may travel to farms to make emergency repairs on equipment so critical farming operations are not delayed. They also perform preventive maintenance. They use basic handtools, testing equipment, welding equipment, and power tools to repair broken machinery.

Working Conditions

Farm equipment mechanics usually work indoors. Modern farm equipment repair shops are well ventilated, lighted, and heated. During planting and harvesting seasons, mechanics may make emergency repairs in the field, perhaps traveling many miles to do so. Farm equipment mechanics come in contact with grease, gasoline, rust, and dirt. There is danger of injury when they repair heavy parts supported on jacks or by joists. Mechanics must take care to avoid burns from hot engine parts, cuts from sharp edges of machinery, and injury from farm chemicals.

Physical Requirements

Mechanical aptitude

Manual dexterity

Ability to lift and move

heavy weights

Helpful School Subjects

Blueprint Reading

Gas/Diesel Mechanics

Auto Mechanics

Welding

Math

Machine Shop

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Association of Machinists and Aerospace Workers.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old preferred. May require aptitude test. Technical training in electronics becoming important. Farm background an advantage when seeking employment. Previous experience and training in diesel and gas engines, maintenance and repair of hydraulics, and welding stressed by employers. Vo-tech graduates preferred over high school experience. May travel to farms to make emergency repairs. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were five active apprentices in Montana in 1989. The employment level for Farm Equipment Mechanics in 1986 was 272. Employment is estimated to be 263 in 1995. Montana projections show there will be nine annual average openings to 1995; none of these openings will be due to growth and nine due to separation. Average wage in 1989 for journeyworkers was about $9.00 per hour.

FIREFIGHTER

D.O.T. Code 373.364-010

Firefighters are prepared to respond to a fire and handle any emergency that arises. They may connect hose lines to hydrants, operate a pump, or position ladders. They may rescue victims and deliver emergency medical aid. Duties include ventilating smoke-filled areas, operating equipment, and salvaging the contents of buildings. Firefighters prepare written reports on fire incidents. Some firefighters operate fire apparatus, ambulances, emergency rescue vehicles, and fireboats. Others educate the public about fire prevention and safety measures.

Working Conditions

Firefighters spend much of their time at fire stations, which usually have facilities for dining and sleeping. When an alarm comes in, firefighters must respond rapidly, regardless of the weather or hour. They may spend long periods of time at fires, hazardous chemical incidents, and other emergencies on their feet and outdoors, sometimes in adverse weather. Firefighting is a hazardous occupation. It involves risk of death or injury from sudden cave-ins of floors or toppling walls and from exposure to flames and smoke. Firefighters may come in contact with poisonous, flammable, and explosive gases and chemicals. Work hours of firefighters vary widely.

Physical Requirements

Excellent physical condition

Mechanical aptitude

Stamina

Agility

Helpful School Subjects

Physical Education

First Aid

Shop Courses

Sciences

Cardio-Pulmonary Resuscitation (CPR)

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Association of Firefighters (AFL-CIO).

Additional Information

Length of this apprenticeship program is three years. Must be 18 years of age, but younger than 34 years of age. High school diploma or equivalent preferred. Aptitude tests required--both written and physical tests of strength, stamina and agility. They are usually on duty 24 hours, then off duty 48 hours. Taking Emergency Medical Technician (EMT) training may be helpful in getting a job. Experience in building trades or truck driving is also helpful. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 16 active apprentices in Montana in 1989. The employment level for Fire Fighters in 1986 was 526. Employment is estimated to be 600 in 1995. Montana projections show there will be 14 annual average openings to 1995; eight of these openings will be due to growth and six due to separation. Average wage in 1989 for journeyworkers was about $10.50 per hour.

FLOOR LAYER

D.O.T. Code 864.481-010

Floor layers apply blocks, strips, or sheets of shock-absorbing, sound-deadening, or decorative covering to floors, walls, and cabinets. They measure, cut, and install covering material, such as rubber, linoleum or cork tile, and foundation material. Floor layers use blueprints and sketches. Tools include rules, straightedges, linoleum knives, and snips.

Working Conditions

Because floors are installed in finished or almost finished structures, work areas usually are clean, lighted, safe, and comfortable. They usually work regular daytime hours. However, when reflooring stores or offices, they may work evenings and weekends to avoid disturbing customers or employees. Installers kneel, reach, bend, stretch, and frequently lift heavy rolls of flooring materials. Despite continual movement and frequent use of hand and power tools, installers experience fewer injuries than most other construction workers.

Physical Requirements

Strong back, legs, and knees

Ability to carry heavy weights

Mechanically inclined

Helpful School Subjects

Mechanical Drawing

Math

Shop Courses

English

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Trade hazards include knee ailments, colds and rheumatism. Many are self-employed. Often requires a valid driver's license. Most employment opportunities are in large cities. May require travel. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were two active apprentices in Montana in 1989. The employment level for Floor Layers, Except Carpet, Wood, and Hard Tiles in 1986 was four. Employment is estimated to be five in 1995. Montana projections show there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $10.00 per hour.

FUEL INJECTION SERVICER

D.O.T. Code 625.281-022

Fuel injection servicers repair and rebuild fuel injection units. These units are used on diesel engines, railroad locomotives, trucks, construction equipment, tractors, and power plants. Customers cannot afford to have their machinery broken down for very long. Therefore, mobile heavy equipment mechanics must be able to determine the problem quickly and fix it effectively. Servicers use a variety of tools in their work, such as common handtools and power tools, and a variety of testing equipment.

Working Conditions

Most fuel injection servicers work as field service mechanics and spend much of their time away from the shop working outdoors. Servicers handle greasy and dirty parts and often work in awkward or cramped positions. They frequently must lift heavy tools and parts. Mechanics are subject to burns, bruises, and cuts from hot engine parts and sharp edges of machinery.

Physical Requirements

Good physical condition

Able to lift heavy weights

Good manual dexterity

Helpful School Subjects

Blueprint Reading

Machine Shop

Auto Mechanics

Mechanical Drawing

Math

Chemistry

Physics

Welding

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three and one-half years. High school or vo-tech graduate and at least 18 years old preferred. Most provide own handtools. Tools cost between $3,000 and $4,000. Vo-Tech or automobile mechanic experience helpful. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Mobile Heavy Equipment Mechanics in 1986 was 573. Employment is estimated to be 665 in 1995. Montana projections show there will be 28 annual average openings to 1995; 10 of these openings will be due to growth and 18 due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

FURNITURE FINISHER

D.O.T. Code 763.381-010

Furniture finishers finish or refinish damaged, worn, or used furniture or new high-grade furniture. Knowledge of wood properties, finishes, and furniture styling is necessary. Finishers may have to disassemble articles and use handtools to repair them. Power tools such as sanders are used to remove old finish. Finishers apply new finish ingredients by brushing or spraying successive coats of finish material.

Working Conditions

Work areas are usually well lighted and well ventilated, but can be noisy if machinery and power tools are used. Wood dust may be a problem, so workers often wear masks for protection. Prolonged standing, lifting, and fitting heavy objects are often necessary.

Physical Requirements

Manual dexterity

Coordination

Able to lift heavy weights

Good eyesight and color perception

Helpful School Subjects

Shop Courses

Art

Home Economics

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. High school diploma or equivalent and at least 18 years old preferred. Many are self-employed. Work areas may be dusty. Exposed to fumes from finishes. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Furniture Finishers in 1986 was 23. Employment is estimated to be 27 in 1995. Montana projections show there will be one annual average opening to 1995; this opening will be due to separation. Average wage in 1989 for journeyworkers was about $7.50 per hour.

FURNITURE UPHOLSTERER

D.O.T. Code 780.381-018

Furniture upholsterers are skilled craft workers who make new furniture and recondition old furniture. They combine knowledge of fabrics and other materials with artistic flair and manual skill. Upholsterers who make new furniture start with the bare wooden frame. Those who recondition old furniture must first remove the old cover, padding, and springs and repair damaged parts. They then install webbing, springs, filling material, and a fabric cover. Upholsterers use a variety of handtools and special tools such as webbing stretchers and upholstery needles. They also use sewing machines.

Working Conditions

Most upholsterers work inside a shop or factory. Working conditions in these facilities may vary--many are spacious, adequately lighted, well ventilated, and well heated; others are small and dusty. Upholsterers stand while they work and do a considerable amount of stooping, bending, and heavy lifting.

Physical Requirements

Manual dexterity

Coordination

Able to lift heavy weights

Good eyesight and color perception

Helpful School Subjects

Home Economics

Math

Mechanical Drawing

Art

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Many are self-employed. Work areas may be dusty. Often furnish own handtools. Union generally represents upholsterers employed in factories. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Upholsterers in 1986 was 82. Employment is estimated to be 101 in 1995. Montana projections show there will be four annual average openings to 1995; two of these openings will be due to growth and two due to separation. Average wage in 1989 for journeyworkers was about $7.00 per hour.

GAS APPLIANCE SERVICER

D.O.T. Code 637.261-018

Gas appliance servicers work on such labor-saving appliances as gas dryers, furnaces, waterheaters, and ranges. When technicians install gas appliances, they must first turn off the gas at the tank valve or meter. Then they measure, cut, and thread pipe and connect it to a feeder line and the appliance. They turn on the flow of gas and check for leaks once the gas line is in place. To determine why an appliance is not working properly, servicers inspect it while in operation to detect unusual noises, overheating, or excess vibration. Servicers make necessary adjustments or replace parts to put the appliance into operating condition.

Working Conditions

Repair shops are usually quiet, well lighted and adequately ventilated. Outside the shop, the repairer may work in narrow spaces and uncomfortable positions amid dirt and dust. Those who repair appliances in homes may spend several hours a day driving.

Physical Requirements

Mechanical ability

Finger dexterity

Helpful School Subjects

Electrical Shop	Physics
Mechanical Drawing	Welding
Metal Shop	English
Public Speaking	Math

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the Sheet Metal Workers International Association.

Additional Information

Length of this apprenticeship program is three years. High school diploma and at least 18 years old preferred. May require an aptitude test. Often need a commercial driver's license and good driving record. Varied working hours. Frequent retraining necessary. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Gas Appliance Repairers in 1986 was 130. Employment is estimated to be 146 in 1995. Montana projections show there will be eight annual average openings to 1995; two of these openings will be due to growth and six due to separation. Average wage in 1989 for journeyworkers was about $14.00 per hour.

GAS MAIN FITTER

D.O.T. Code 862.361-014

Gas main fitters are also called pipefitters. They install, maintain, and repair pipe systems that carry gas to residences and other buildings. They must be able to follow building plans and instructions to lay out and finish jobs. Gas main fitters use handtools, torches, and pressure gauges.

Working Conditions

Pipefitters must have physical stamina because they frequently must lift heavy pipes and stand for long periods. Maintenance workers may have to work evening or weekend shifts, and some may be on call. Pipefitters frequently work in cramped and dirty places and may have to work outdoors in inclement weather. Injuries can occur from falls from ladders, cuts from sharp tools, and burns from hot pipes or from soldering equipment.

Physical Requirements

Good physical condition

Mechanical aptitude

Stamina

Helpful School Subjects

Auto Mechanics

Drafting

Welding

Metal Shop

Physics

Math

English

Wood Shop

Chemistry

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the United Association of Plumbers and Pipefitters.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 17 years old preferred. Considerable mechanical aptitude needed. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Plumbers, Pipefitters, and Steamfitters in 1986 was 715. Employment is estimated to be 828 in 1995. Montana projections show there will be 39 annual average openings to 1995; 13 of these openings will be due to growth and 26 due to separation. Average wage in 1989 for journeyworkers was about $18.50 per hour.

GEMOLOGIST

D.O.T. Code 199.281-010

Gemologists examine precious stones such as diamonds, rubies, and emeralds to determine their genuineness, quality, and value. Knowledge of gems and market values is necessary. They examine gem surfaces and internal structure using devices such as polariscopes, refractometers, microscopes, and other optical instruments. Gemologists grade stones for color, perfection, and quality of cut. They estimate wholesale and retail value of gems. They follow pricing guides, market fluctuations, and various economic changes that affect distribution of precious stones. Gemologists may advise customers in use of gems to create attractive jewelry items.

Working Conditions

Gemologists usually work in comfortable surroundings, and the trade involves few physical hazards. For those who are also jewelers, doing delicate work while trying to satisfy demands for speed and quality from customers and employers can cause stress. Bending over a workbench for long periods can be uncomfortable.

Physical Requirements

Good finger dexterity

Spacial ability

Form perception

Average mechanical ability

Personable

Helpful School Subjects

Mechanical Training

Physical Sciences

Marketing

Gemology

Economics

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. Experience or some post-secondary training preferred. Business courses may be helpful. Highly competitive field. Some gemologists are jewelers. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for All Other Precision Workers in 1986 was 104. Employment is estimated to be 112 in 1995. Montana projections show there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $8.00 per hour.

GLAZIER

D.O.T. Code 865.381-010

Glaziers install glass in windows, skylights, building fronts, interior walls, and display cases. On some jobs, the glass is precut and ready to install. For other jobs, glaziers may have to cut the glass before installing. They cut glass with a special cutting tool, resting it on the edge of a rack, or A-frame, or flat against a cutting table. Glaziers secure glass in openings with materials such as rubber gaskets, putty, metal clips, and metal or wood molding. They use a variety of hand tools in addition to glass cutters. Glaziers also use many types of sealants, mastics--a paste-like cement--and rubber moldings.

Working Conditions

Much of the glass installed is large and bulky, requiring glaziers to work in teams. The work may require considerable travel to outlying areas, as shops equipped to handle large installations are concentrated in highly populated areas. The work requires a considerable amount of bending, stooping, standing, and lifting. There is a chance of injury from lifting glass, falling from scaffolding, or cuts from broken glass.

Physical Requirements

Good physical condition

Stamina, agility

Good balance

Good eye-hand coordination

Helpful School Subjects

Blueprint Reading

Mechanical Drawing

General Construction

Math

Shop

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school or vo-tech graduate and at least 18 years old preferred. Often requires a valid driver's license. Glass is now popular in building design. Most workers provide own handtools. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Glaziers in 1986 was 142. Employment is estimated to be 155 in 1995. Montana projections show there will be five annual average openings to 1995; one of these openings will be due to growth and four due to separation. Average wage in 1989 for journeyworkers was about $13.00 per hour.

GRINDER OPERATOR

D.O.T. Code 603.280-018

Grinder operators set up and operate grinding and related tools that remove excess material from internal and external surfaces of workpieces. They use machines that sharpen edges or corners, or buff, hone, and polish metal or plastic workpieces. Grinder operators plan, set up, and perform the correct sequence of machining operations according to blueprints, layouts, or other instructions. Using micrometers, gauges, and other precision measuring instruments, they compare the work with tolerance limits given in specifications.

Working Conditions

Grinders must endure dirt, dust, grease, and flying metal or plastic chips. They have a well-lighted environment and work is not physically demanding. Noise is one factor when working with machinery, and safety is of utmost importance. Grinding operators have to stand for long periods of time.

Physical Requirements

Good hand and wrist movement

and usage

Good vision

Helpful School Subjects

Blueprint Reading

Math

Machine Shop

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old required. Aptitude test required. Need ability to visualize two- and three-dimension objects and to make visual comparisons. Risk injury from cutting tools, moving machinery, and abrasive dust. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Tool Grinders, Filers and Sharpeners in 1986 was 154. Employment is estimated to be 166 in 1995. Montana projections show there will be six annual average openings to 1995; one of these openings will be due to growth and five due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

GUNSMITH

D.O.T. Code 632.281-010

Gunsmiths repair and change firearms using handtools and machines, such as grinders, planers, and millers. They may make wooden stocks for guns. Some also lay out plans on paper and calculate bullet-flight arcs, sight positions, and other details to design new guns.

Working Conditions

Gunsmiths have a well-lighted environment and work is not physically demanding. Noise is one factor when working with machinery, and safety is of utmost importance.

Physical Requirements

Mechanical ability

Manual dexterity

Eye-hand coordination

Finger dexterity

Helpful School Subjects

Wood Shop

Math

Physics

Chemistry

Metal Shop

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent required and at least 18 years old preferred. Experience in related jobs or training preferred. Usually provide own tools. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Precision Instrument Repairers in 1986 was 87. Employment is estimated to be 94 in 1995. Montana projections show there will be 14 annual average openings to 1995; one of these openings will be due to growth and 13 due to separation. Average wage in 1989 for journeyworkers was about $9.00 per hour.

HORSE TRAINER

D.O.T. Code 419.224-010

Horse trainers train horses that are used for riding or harness. Duties include feeding, exercising, and grooming horses. They condition horses to respond to oral, spur, or rein commands. Horse trainers usually specialize in conditioning and developing horses for one type of riding, driving, racing, or show activity.

Working Conditions

Horse trainers work in stables, barns, and indoor and outdoor riding arenas. Care of horses requires work amidst dirt and dust.

Physical Requirements

Good physical condition

Personable

Able to lift heavy weights

Helpful School Subjects

Veterinary Science

Biology

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is one year. Many are self employed. Experience with animals preferred. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Animal Caretakers, Except Farm in 1986 was 83. Employment is estimated to be 69 in 1995. Montana projections show there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $6.00 per hour.

HYDROELECTRIC STATION OPERATOR

D.O.T. Code 952.362-018

Hydroelectric station operators control electrical generating units and related equipment at a hydroelectric-generating station. They operate a switchboard and manually-operated controls to control water wheels, generators, and auxiliary hydroelectric-generating station equipment. They distribute power output among generating units, according to power demands. They may perform minor maintenance on equipment.

Working Conditions

Powerplants are well lighted and ventilated, clean, and orderly, but there is some noise from equipment. Workers usually sit or stand at a control station. The work is usually not physically strenuous, but requires constant attention. Powerplants provide electricity around the clock, so operators often work nights and weekends, usually on rotating shifts.

Physical Requirements

Mechanical ability

Manual dexterity

Good physical condition

Good vision

Good hearing

Helpful School Subjects

Machine Shop

Mechanical Drawing

Electrical Shop

Physics

Chemistry

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers or the Utility Workers Union of America.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent preferred and at least 18 years old required. Shift work common. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Power Generating Plant Operators in 1986 was 104. Employment is estimated to be 114 in 1995. Montana projections show there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $18.00 per hour.

INSTRUMENTATION TECHNICIAN

D.O.T. Code 003.261-010

Instrumentation technicians set up and operate electronic instrumentation in operational and environmental testing of mechanical, structural, or electrical equipment. They install, calibrate, and check out sensing, telemetering, and recording instrumentation and circuitry. Technicians may sketch and build fixtures and instruments and perform preventive and corrective maintenance on equipment. Technicians produce test data for others to use.

Working Conditions

Depending on the job, technicians may have to stand for long periods, climb ladders, and do some reaching, stooping, and light lifting. They must take precautions to avoid electrical shocks.

Physical Requirements

Good eye-hand coordination

Ability to notice and compare differences in objects

Color discretion

Helpful School Subjects

Math

Blueprint Reading

Electronics

Computer Programming

Machine Shop

Physics

Drafting

English

Chemistry

Licensing Requirements

Federal Communications Commission (FCC) licensing may be required by some employers.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. Previous work experience and/or post high school Electronics Technology training preferred. Frequent retraining may be necessary. Security clearance necessary in some cases. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Precision Instrument Repairers in 1986 was 87. Employment is estimated to be 94 in 1995. Montana projections show there will be 14 annual average openings to 1995; one of these openings will be due to growth and 13 due to separation. Average wage in 1989 for journeyworkers was about $13.00 per hour.

IRONWORKER

D.O.T. Code 801.361-014

Ironworkers construct and erect structural metal products such as the framework for buildings, bridges, and other structures. They use blueprints and follow job orders. Ironworkers may also align and assemble ornamental iron. They use metalworking and welding equipment and handtools. They may bolt, weld, rivet, or solder pieces to make a finished product. They assemble and use hoisting equipment to move materials around the construction site.

Working Conditions

Ironworkers usually work outside in all kinds of weather. Those who work at great heights do not work when it is wet, slippery because of ice or snow, or extremely windy. Falls from heights are one hazard. However, they use safety devices such as safety belts, scaffolding, and nets to reduce the risk of injuries. They may have to travel long distances to work sites.

Physical Requirements

Above average strength and endurance

Good eyesight without glasses

Able to work in high places and lift heavy weights

Good balance

Manual dexterity

Helpful School Subjects

English

Math

Mechanical Drawing

Welding

Blueprint Reading

Forge Shop

Physical Education

Metal Shop

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Association of Bridge, Structural and Ornamental Iron Workers.

Additional Information

Length of this apprenticeship program is three years. High school or vo-tech graduate and at least 18 years old preferred. Can involve considerable travel. Employment opportunities vary with building industry. Seasonal employment. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Structural Metal Fabricators in 1986 was 162. Employment is estimated to be 120 in 1995. Montana projections show there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $17.50 per hour.

JEWELER

D.O.T. Code 700.281-010

Jewelers use precious metals and stones to make, repair, and adjust rings, necklaces, bracelets, earrings, and other jewelry. They use a variety of tools and materials. Jewelers use pliers, soldering irons, saws, and a variety of other handtools to mold and shape metal and to set precious and semiprecious stones. They may also use chemicals and polishing compounds, such as flux for soldering and tripoli and rouge for finishing.

Working Conditions

Jewelers usually work in comfortable surroundings, and the trade involves few physical hazards. However, those working with chemicals must take caution to prevent burns and other injuries. In addition, doing delicate work while trying to satisfy demands for speed and quality from customers and employers can cause stress. Bending over a workbench for long periods can be uncomfortable. Because many of the materials they work with are very valuable, those working in retail stores must observe strict security procedures.

Physical Requirements

Good finger dexterity

Spacial ability

Form perception

Average mechanical ability

Personable

Helpful School Subjects

Mechanical Training

Gemology

Physical Sciences

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. Experience or some post-secondary training preferred. Some jewelers wait on customers. Business courses may be helpful. Highly competitive field. Those who can repair watches have an advantage since watch repairs account for much of the business in small stores. Certification as watchmaker is not required, but can be obtained through the American Watchmakers Institute. For more information, write to the American Watchmakers' Institute, P.O. Box 11011, Cincinnati, Ohio 45211. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were two active apprentices in Montana in 1989. The employment level for Jewelers and Silversmiths in 1986 was 107. Employment is estimated to be 125 in 1995. Montana projections show there will be seven annual average openings to 1995; two of these openings will be due to growth and five due to separation. Average wage in 1989 for journeyworkers was about $8.00 per hour.

JOB PRINTER

D.O.T. Code 973.381-018

Job printers set type from copy and operate cylinder or automatic platen presses to print complete job orders. They proof copy for errors and correct them by resetting type. Job printers examine printed sheets as they are running through presses for clarity of impression and adjust the press when printing is defective. They clean ink rollers at the end of runs.

Working Conditions

Setting type and operating a press can be physically and mentally demanding. Press operators are on their feet most of the time. Most printing presses are capable of high printing speeds, and adjustments are made quickly to avoid waste. Pressrooms are noisy, and workers in certain areas wear ear protectors. Because press operators are subject to hazards when working near machinery, employers emphasize safe working habits. Often, operators work under pressure to meet deadlines.

Physical Requirements

Eye-hand coordination

Manual dexterity

Ability to lift up to 100 pounds

Helpful School Subjects

Graphic Arts

Basic Electronics

Photography

Math

English

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the Billings-Missoula Printing and Graphics Communications Union (AFL-CIO) or the International Printing and Communications Union.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 17 years old preferred. Noisy work. During busy periods overtime is common. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Job Printers in 1986 was 61. Employment is estimated to be 67 in 1995. Montana projections show there will be three annual average openings to 1995; one of these openings will be due to growth and two due to separation. Average wage in 1989 for journeyworkers was about $9.00 per hour.

LEATHER WORKER

D.O.T. Code 783.381-026

Leather workers cut, assemble, and join leather parts and other materials to form articles. They check leather for texture, color, and strength, then cut the leather according to a pattern and sew the pieces together. Workers may apply leather dyes and liquid top coats to produce gloss. They decorate the article surface either by hand stitching or stamping the leather with decorative patterns and designs. Workers use handtools and power-operated machines.

Working Conditions

Leather workers work in a noisy environment because of machines used in sewing leather. Odors from leather dyes and stains are often present. The work is not strenuous and if safety precautions are followed, hazards are few.

Physical Requirements

Manual dexterity

Coordination

Able to lift heavy weights

Good eyesight, color perception

Helpful School Subjects

Home Economics

Mechanical Drawing

Art

Math

Shop Courses

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the Leatherworkers International Union of America. For information, write to the Leatherworkers International Union of America, 11 Peabody Square, Peabody, MA 01960.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Long work hours may be required. Most are self-employed. Provide own tools. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Shoe and Leather Workers in 1986 was 21. Employment is estimated to be 23 in 1995. Montana projections show there will be three annual average openings to 1995; none of these openings will be due to growth and three due to separation. Average wage in 1989 for journeyworkers was about $7.00 per hour.

LOCKSMITH

D.O.T. Code 709.281-010

Locksmiths install, repair, and open locks. They make keys, install safes, and change lock combinations. Locksmiths use handtools and special equipment to disassemble locks and make repairs. Keeping records of company locks and keys may be part of their duties.

Working Conditions

Locksmiths work both indoors and outdoors. Shop conditions are clean, well lighted, and free from dust. They may have to work outdoors in adverse weather. Some installations may require stooping and bending for periods of time. Some locksmiths are on call at all hours of the day.

Physical Requirements

Mechanical ability

Manual dexterity

Eye-hand coordination

Helpful School Subjects

Shop Courses

Math

Physics

Chemistry

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old required. Related experience or training preferred. Usually provide own tools. Most locksmiths are self-employed. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Locksmiths and Safe Repairers in 1986 was one. Employment is estimated to be one in 1995. Montana projections show there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $8.00 per hour.

LOGGER

D.O.T. Code 454.684-018

Loggers perform a variety of operations to cut timber. Fallers cut down trees. Buckers trim off the tops and branches and may cut logs into specified lengths. Choke setters fasten steel cables or chains around logs to be dragged by tractors. Riggers set up and dismantle the cables and guy wires of cable yarding systems. Logging tractor operators drive crawler or wheeled tractors to skid logs from the felling site to the landing. Log handling equipment operators operate tracked or wheeled equipment to load or unload logs and pulpwood onto or off trucks or railroad cars.

Working Conditions

Most timber cutting and logging jobs involve lifting, climbing, and other strenuous activities. They work under hazardous conditions. Falling trees and branches are a constant danger, as are the dangers associated with log handling operations and use of sawing equipment. Hearing may be impaired over long periods of time because of the high noise level of sawing and skidding operations. Protective equipment, such as hard hats, eye protection, and heavy clothing and boots are important to avoid injury.

Physical Requirements

Good physical health

Stamina

Mechanical aptitude

Good eye-hand coordination

Helpful School Subjects

Woodworking

Forestry

Botany

Math

Business

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. Risk injury from saws and skidding equipment. May experience periods of unemployment because of weather conditions, decline in construction activity, and relocation of logging operations. May have to travel up to three hours between home and logging sites. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Fallers and Buckers in 1986 was 733. Employment is estimated to be 777 in 1995. Montana projections show there will be 16 annual average openings to 1995; five of these openings will be due to growth and 11 due to separation. The employment level for Choke Setters in 1986 was 112. Employment is estimated to be 118 in 1995. Montana projections show there will be three annual average openings to 1995; one of these openings will be due to growth and two due to separation. The employment level for Log Handling Equipment Operators in 1986 was 236. Employment is estimated to be 253 in 1995. Montana projections show there will be five annual average openings to 1995; two of these openings will be due to growth and three due to separation. The employment level for Logging Tractor Operators in 1986 was 457. Employment is estimated to be 484 in 1995. Montana projections show there will be seven annual average openings to 1995; three of these openings will be due to growth and four due to separation. Average wage in 1989 for journeyworkers was about $16.90 per hour.

MACHINIST

D.O.T. Code 600.280-022

Machinists produce metal goods made in numbers too small to produce with automated machinery. They set up and operate most types of machine tools. Machinists must know the working properties of metals such as steel, cast iron, aluminum, and brass. They review blueprints or written specifications for a job, then select tools and materials. Machinists position metal stock on machine tools, set controls, and make cuts. To make sure their work meets specifications, they use precision instruments such as micrometers. They then finish and assemble pieces. Some machinists may repair parts for existing machinery.

Working Conditions

Most machine shops are well lighted and well ventilated. Working around high-speed machine tools presents certain dangers, and workers must follow safety practices. They wear protective equipment such as safety glasses and earplugs. The job requires stamina because machinists stand most of the day and may lift moderately heavy workpieces.

Physical Requirements

Above average use of hands and

eye-hand coordination

Ability to follow complex directions

Helpful School Subjects

Machine Shop

Mechanical Drawing

Blueprint Reading

Math

Physics

Drafting

Metallurgy

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Association of Machinists and Aerospace Workers.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old required. Aptitude test required. Risk injury from high speed cutting tools, moving machinery, metal chips, and abrasive dust. Must supply own tools. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were seven active apprentices in Montana in 1989. The employment level for Machinists in 1986 was 738. Employment is estimated to be 750 in 1995. Montana projections show there will be 23 annual average openings to 1995; one of these openings will be due to growth and 22 due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

MACHINIST, AUTOMOTIVE

D.O.T. Code 600.280-034

Automotive machinists repair automotive engine parts or units such as transmissions, differentials, springs, or brakes. They set up and operate many types of machine tools. Knowledge of the working properties of metals such as steel, cast iron, aluminum, and brass is necessary. Machinists position metal stock on machine tools, set controls, and make cuts. They use precision instruments such as micrometers to make sure their work meets specifications. Machinists finish and assemble pieces.

Working Conditions

Most machine shops are well lighted and well ventilated. Working around high-speed machine tools presents certain dangers, and workers must follow safety practices. They wear protective equipment such as safety glasses and earplugs. The job requires stamina because machinists stand most of the day and may lift moderately heavy workpieces.

Physical Requirements

Good vision

Normal health

Good eye-hand coordination

Mechanical aptitude

Helpful School Subjects

Math

Physics

Shop Courses

Electronics

Mechanical Drawing

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the Internal Association of Machinists and Aerospace Workers.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and 18 year old preferred. May require aptitude test. Risk injury from high speed cutting tools, moving machinery, metal chips, and abrasive dust. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were four active apprentices in Montana in 1989. The employment level for Machinists in 1986 was 738. Employment is estimated to be 750 in 1995. Montana projections show there will be 23 annual average openings to 1995; one of these openings will be due to growth and 22 due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

MACHINIST, WOOD

D.O.T. Code 669.380-014

Wood machinists produce goods from various types of wood. They set up and operate most types of machine tools. Knowledge of the working properties of different woods is necessary. Machinists review blueprints or written specifications for a job, then select tools and materials. Machinists position wood stock on machine tools, set controls, and make cuts. They use precision instruments such as micrometers to make sure their work meets specifications. Machinists finish and assemble pieces.

Working Conditions

Most machine shops are well lighted and well ventilated. Working around high-speed machine tools presents certain dangers, and workers must follow safety practices. They wear protective equipment such as safety glasses and earplugs. The job requires stamina because machinists stand most of the day and may lift moderately heavy workpieces.

Physical Requirements

Above average use of hands and

eye-hand coordination

Ability to follow complex directions

Helpful School Subjects

Machine Shop

Mechanical Drawing

Blueprint Reading

Math

Physics

Wood Shop

Drafting

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old required. Aptitude test required. Risk injury from high speed tools, moving machinery, wood chips, and dust. Must supply own tools. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Wood Machinists in 1986 was 77. Employment is estimated to be 82 in 1995. Montana projections show there will be three annual average openings to 1995; one of these openings will be due to growth and two due to separation. Average wage in 1989 for journeyworkers was about $7.50 per hour.

MAINTENANCE REPAIRER, BUILDING

D.O.T. Code 899.381-010

Building maintenance repairers are jacks-of-all-trades. Duties include repairing and maintaining plumbing, heating, air conditioning, and electrical systems in buildings. They build partitions, make plaster or drywall repairs, and fix or paint roofs, windows, doors, floors, woodwork, and other parts of building structures. They inspect and diagnose problems and plan how work will be done. Repairers use common hand and power tools , as well as specialized equipment and electronic test devices. Routine preventive maintenance is an important part of repairers' jobs. They keep records of maintenance and repair work.

Working Conditions

Maintenance mechanics often do a variety of tasks in a single day. They work at several different locations in a building, or in several buildings. They may have to stand for long periods, lift heavy objects, and work in uncomfortably hot or cold environments. Some work in awkward and cramped positions or on ladders. They are subject to electrical shock, burns, falls, and cuts and bruises. Evening, night shifts, or weekend work are required, and repairers may be on call for emergency repairs.

Physical Requirements

Ability to lift and carry up

to 50 pounds

Stamina

General good health

Mechanical ability

Helpful School Subjects

Electrical Theory

Plumbing

Shop Courses

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. Related work experience preferred. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were five active apprentices in Montana in 1989. The employment level for Maintenance Repairers, General Utility in 1986 was 3305. Employment is estimated to be 3840 in 1995. Montana projections show there will be 219 annual average openings to 1995; 59 of these openings will be due to growth and 160 due to separation. Average wage in 1989 for journeyworkers was about $8.00 per hour.

MECHANIC, INDUSTRIAL TRUCK

D.O.T. Code 620.281-050

Industrial truck mechanics repair and maintain diesel engines that power heavy trucks. In many repair shops, mechanics do all kinds of repair work. They use a varlety of tools in their work, such as pneumatic wrenches, machine tools, welding and flame-cutting equipment, common handtools, jacks, and hoists. Mechanics use a variety of testing equipment.

Working Conditions

Industrial truck mechanics usually work indoors, although they may occasionally work or make repairs on the road. They are subject to the usual shop hazards such as cuts and brulses. Mechanics handle greasy and dirty parts and may stand or lie in awkward or cramped positions to repair vehicles and equipment. Work areas are well lighted, heated, and ventilated.

Physical Requirements

Good physical condition

Able to lift heavy weights

Good manual dexterity

Helpful School Subjects

Auto Mechanics

Mechanical Drawing

Blueprint Reading

Machine Shop

Welding

Math

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Association of Machinists and Aerospace Workers.

Additional Information

Length of this apprenticeship program is four years. High school or vo-tech graduate and at least 18 years old preferred. Worker provides own handtools. Vo-tech or automobile mechanic experience preferred. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Bus and Truck Mechanics, and Diesel Engine Specialists in 1986 was 1036. Employment is estimated to be 1177 in 1995. Montana projections show there will be 40 annual average openings to 1995; 16 of these openings will be due to growth and 24 due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

MEDICAL TECHNOLOGIST

D.O.T. Code 078.361-014

Medical technologists perform laboratory tests on specimens taken from patients. They analyze blood, tissues, and fluids from the human body by using precision instruments such as microscopes and automatic analyzers. Some technologists also do health research, teach, or perform administrative duties. Technologists may supervise medical technicians.

Working Conditions

Medical technologists work in clean, well lighted laboratories. Some may work evening shifts and on weekends. They spend a lot of time on their feet. Safety is important, as well as proper sterilization techniques.

Physical Requirements

Finger and manual dexterity

Good verbal and numerical ability

Helpful School Subjects

Mathematics

Sciences

Licensing Requirements

Licensing is not required, but medical technologists and technicians are certified after completing an approved training program and passing an exam. The following routes lead to certification: 1) Medical Technologist, MT (ASCP) certification by the Board of Registry of the American Society of Clinical Pathologists; 2) Medical Technologist, MT certification by the American Medical Technologists; 3) Clinical Laboratory Scientist, CLS certification by the National Certification Agency for Medical Laboratory Personnel; 4) Registered Medical Technologists, RMT certification by the International Society of Clinical Laboratory Technology. These agencies also certify medical technicians. For more information, contact the American Society of Clinical Pathologists, Board of Registry, P.O. Box 12270, Chicago, IL 60612.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. High school diploma required. Attendance at an accredited clinical program preferred. Medical technicians can advance to technologists by getting additional education and experience. Workers encounter unpleasant odors and diseased specimens. Some evening and weekend work is required. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Medical and Clinical Laboratory Technologists in 1986 was 556. Employment is estimated to be 647 in 1995. Montana projections show there will be 16 annual average openings to 1995; 10 of these openings will be due to growth and six due to separation. Average wage in 1989 for journeyworkers was about $10.90 per hour.

MILLWRIGHT

D.O.T. Code 638.281-018

Millwrights install and dismantle the machinery and heavy equipment used in almost every industry. They unpack new equipment and inspect it for damage and missing parts. They then move equipment into position, using rigging and hoisting devices or hydraulic lift-truck operators. Millwrights must know the load-bearing properties of ropes, cables, hoists, and cranes. Knowledge of blueprint reading and working with building materials such as concrete, wood, and steel is necessary. They fit bearings, align gears and wheels, attach motors, and connect belts according to blueprints and drawings. Millwrights use hand and power tools, cutting torches, welding machines, and soldering guns.

Working Conditions

Millwrights employed by factories ordinarily work year round. Those employed by construction companies may experience periods of unemployment; however, pay is at a higher hourly wage rate. Millwrights who work for companies that manufacture and install machinery may travel a lot. They are subject to the usual shop hazards, such as cuts and bruises, associated with working around machinery. Injury from falling objects or machinery that is being moved, and from falls from scaffolding and catwalks are hazards. These hazards are reduced by the use of protective devices such as safety belts and hard hats.

Physical Requirements

Good manual dexterity and strength

Motor coordination

Mechanical ability

Helpful School Subjects

Mechanical Drawing

Blueprint Reading

Physical Sciences

Shop Courses

Welding

Math

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Carpenters.

Additional Information

Length of this apprenticeship program is four years. Must be at least 18 years old. On-the-job training or seniority required--not an entry level occupation. Ability to lift and carry loads up to 50 pounds. Union affiliation depends on type of industry employment. Employment requires frequent retraining. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were two active apprentices in Montana in 1989. The employment level for Millwrights in 1986 was 354. Employment is estimated to be 383 in 1995. Montana projections show there will be 10 annual average openings to 1995; three of these openings will be due to growth and seven due to separation. Average wage in 1989 for journeyworkers was about $13.50 per hour.

MOLDER, PATTERN

D.O.T. Code 693.381-022

Pattern molders cast patterns in metal for use in high production castings. They have knowledge of metal characteristics, molding sand, contours of patterns, and pouring procedures. Molders make sand molds, using wood patterns to form mold impressions of metal patterns that they are casting. They pour molten metals into molds. Molders use micrometers, gauges, and other precision measuring instruments to compare the completed work with the tolerance limits stated in specifications.

Working Conditions

Most metalworking machine shops are well lighted and well ventilated. Molders operate powerful, high-speed machines that can be dangerous. Molders wear protective thermal and burn resistant clothing to shield them from intense heat. The work requires stamina because molders are on their feet much of the day and may do moderately heavy lifting.

Physical Requirements

Average spacial perception

Finger and manual dexterity

Eye-hand coordination

Good vision

Physical strength

Helpful School Subjects

Shop Arithmetic

Metallurgy

Blueprint Reading

Shop Drawing

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Molders and Allied Workers Union.

Additional Information

Length of this apprenticeship program is three years. Prefer at least 18 years old. Often exposed to heat, fumes, smoke, and hazards. Most molders purchase own tools. Some applicants gain related work experience as a molder's helper. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Precision Foundry Mold and Core Makers in 1986 was 12. Employment is estimated to be nine in 1995. Montana projections show there will be one annual average opening to 1995; this opening will be due to separation. Average wage in 1989 for journeyworkers was about $8.00 per hour.

MOTORBOAT MECHANIC

D.O.T. Code 623.281-038

Motorboat mechanics repair and adjust engines, electrical, and mechanical equipment of inboard and outboard marine engines. Most small boats have portable outboard engines that can be removed and brought into the repair shop. Larger craft, such as cabin cruisers and commercial fishing boats, are powered by diesel or gasoline inboard or inboard-outdrive engines. These engines are removed for major overhauls. Motorboat mechanics may also work on propellers, steering mechanisms, marine toilets, and other boat equipment.

Working Conditions

Motorboat mechanics usually work in repair shops that are well-lighted and ventilated, but are sometimes noisy when engines are tested. Mechanics may work outdoors in all weather when repairing inboard engines aboard boats. They may have to work in cramped or awkward positions to reach a boat's engine.

Physical Requirements

General good health

Stamina

Good eye-hand coordination

Good color perception

Ability to lift up to 75 pounds

Ability to work in a closed space

with dust and chemical fumes

Helpful School Subjects

Metalworking

Auto Mechanics

Drafting

Metallurgy

Math

Welding

Painting

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of the Motorboat Mechanic apprenticeship program is three years. Must be at least 17 years old. JATC requires high school diploma or equivalent, aptitude test. Hobbies dealing with boating may increase employment opportunities. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Small Engine Specialists in 1986 was 101. Employment is estimated to be 117 in 1995. Montana projections show there will be two annual average openings to 1995; two of these openings will be due to growth and none due to separation. Average wage in 1989 for journeyworkers was about $8.50 per hour.

MOTORCYCLE MECHANIC

D.O.T. Code 620.281-054

Motorcycle mechanics repair and overhaul motorcycles, motor scooters, mopeds, and all-terrain vehicles. Besides engines, they work on transmissions, brakes, and ignition systems, and make minor body repairs. They may use special testing equipment and disassemble some parts for further examination.

Working Conditions

Motorcycle mechanics usually work in repair shops that are well lighted and ventilated, but are sometimes noisy when engines are tested. Some mechanics may work fewer than 40 hours a week during winter. Some of the winter slack is taken up by scheduling time-consuming engine overhauls and working on snowmobiles and snowblowers. Many mechanics work considerably more than 40 hours a week in the spring, summer, and fall.

Physical Requirements

Able to lift and carry up to 100 pounds

Mechanical aptitude

Manual dexterity

Good eyesight and hearing

Motor coordination

Helpful School Subjects

Machine Shop

Metal Shop

Auto Mechanics

Math

Small Engine Repair

Sciences

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Provide own handtools. Must be able to get a motorcycle driver's license. Often seasonal work. May work as a snowmobile repairer in winter. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Motorcycle Repairers in 1986 was 50. It is expected to be 53 in 1995. Montana projections indicate there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $7.25 per hour.

OFFICE MACHINE SERVICER

D.O.T. Code 633.281-018

Office machine servicers maintain and repair machines used to process paperwork in business and government. These machines include typewriters, adding and calculating machines, cash registers, dictating machines, postage meters, and duplicating and copying equipment. Servicers regularly visit offices and stores of customers to do preventive maintenance and make minor repairs. Serious problems may require that a part or entire machine be taken to the repair shop. They use common handtools, as well as other tools that fit certain kinds of machines. Servicers use testing equipment to check for malfunctions in electronic circuitry.

Working Conditions

Servicing office machines and cash registers is cleaner and less strenuous than the work in most other mechanical trades. Servicers usually wear business clothes and do most of their work in the customer's place of business. They travel a great deal because they usually visit several customers each workday.

Physical Requirements

Mechanical aptitude

Manual dexterity

Good physical condition

Good vision, color discretion

Helpful School Subjects

Blueprint Reading

Mechanical Drawing

Physical Sciences

Electronics

Math

Welding

Shop Courses

English

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school graduate or equivalent and at least 18 years old preferred. Usually need a valid driver's license. Work available in both small and large towns. Bonding may be required. Must have a record of honesty. Occupation requires frequent retraining. Year-round employment. Opportunities for employment and advancement increase with training in electronics. May require travel. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were five active apprentices in Montana in 1989. The employment level for Office Machine and Cash Register Servicers in 1986 was 184. It is expected to be 195 in 1995. Montana projections indicate there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $7.00 per hour.

OPERATING ENGINEER

D.O.T. Code 859.683-010

Operating engineers use machinery to move construction materials and other manufactured goods, earth, logs, petroleum products, grain, coal, and other heavy materials. Generally, they move materials over short distances. Operators control equipment by moving levers or pedals, operating switches, or turning dials. They may also set up, inspect, and adjust equipment and make minor repairs. Material moving equipment operators are classified by the type of machines they operate.

Working Conditions

Many operating engineers work outdoors, in hot and cold weather, but do not usually work in rain or snow. Some machines are noisy and constantly shake or jolt the operator. They must constantly observe safety practices.

Physical Requirements

Stamina

Above average eye-hand-foot coordination

Good health

Helpful School Subjects

Auto Mechanics

Metal Shop

Physics

Electrical Shop

Math

Drafting

English

Licensing Requirements

Licensing is required for hoisting/crane operators. For licensing information, write or call the Safety Bureau, Department of Labor and Industry, P.O. Box 8011, Helena, Montana 59604-8011; phone (406) 444-6401.

Union Affiliation

May or may not be affiliated with the International Brotherhood of Operating Engineers.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent required and at least 18 years old preferred. Able to work in considerable dust, dirt, and noise. Dangerous work. Experience in operating tractors and other farm machinery helpful. May be required to travel. Often laid off during winter. For more information, write the American Society of Mechanical Engineers, United Engineering Center, 345 E. 47th St., New York, NY 10017. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 10 active apprentices in Montana in 1989. The employment level for Operating Engineers in 1986 was 1210. It is expected to be 1373 in 1995. Montana projections indicate there will be 57 annual average openings to 1995; 18 of these openings will be due to growth and 39 due to separation. Average wage in 1989 for journeyworkers was about $15.05 per hour.

OPTICIAN

D.O.T. Code 716.280-014

Opticians accept prescriptions from an ophthalmologist or optometrist. Work duties include helping customers select appropriate eyeglass frames, writing orders for ophthalmic laboratory work, and adjusting finished glasses. They may also fit contact lenses. Opticians adjust glasses with handtools, such as optical pliers, files, and screwdrivers. They use special instruments to check the power and surface quality of the lenses.

Working Conditions

Opticians work indoors in pleasant surroundings that are well lighted and well ventilated. Because they sell and service eye lenses, they deal with customers most of the time. They spend part of their time on their feet. Some, especially those employed in retail shops in large shopping centers, work in the evenings and on weekends.

Physical Requirements

Good use of hands and fingers

Mechanical aptitude

Ability to visualize objects from pictures, observe detail in objects

Helpful School Subjects

Algebra

Mechanical Drawing

Electrical Theory

Physics

Business

English

Licensing Requirements

Licensing is not required for opticians in Montana, but they can become certified nationally by taking the National Academy of Opticianry exam.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent required and at least 18 years old preferred. Opportunities best in metropolitan areas. Hobbies that involve manual dexterity and attention to detail, such as fixing cameras, provide evidence of mechanical ability. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Opticians, Dispensing and Measuring in 1986 was 215. It is expected to be 239 in 1995. Montana projections indicate there will be 17 annual average openings to 1995; three of these openings will be due to growth and 14 due to separation. Average wage in 1989 for journeyworkers was about $9.50 per hour.

ORTHOTIST

D.O.T. Code 078.261-018

Orthotists provide care to patients with disabling conditions of limbs and spine. They examine and test the patient's orthotic needs, then design orthoses (devices such as casts, splints, and braces). Orthotists make casts, measurements, and model changes. They then fit and adjust devices to assure function, comfort, and workmanship. They instruct the patient in orthosis use. Work is done with the guidance of a physician.

Working Conditions

Orthotists usually work in areas that are well lighted and well ventilated. The job is physically demanding at times because they have to lift and carry equipment. They may work in hospitals or clinics, directed by a physician.

Physical Requirements

Motor coordination

Manual and finger dexterity

Helpful School Subjects

Health

Math

Biology

Sciences

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent preferred. Related health training or education preferred. Work involves stooping and reaching. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Medical Appliance Makers in 1986 was six. It is expected to be six in 1995. Montana projections indicate there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $9.00 per hour.

PAINTER

D.O.T. Code 840.381-010

Painters use brushes, rollers, and spray guns to apply paint to a variety of surfaces. They have to prepare surfaces by removing grease and scale, or by resurfacing imperfections. Painters mix paints and match colors. They must have a knowledge of paint composition and color harmony. Painting and paper hanging are separate trades, but many persons do both as they are somewhat compatible.

Working Conditions

Painters must have strong arms as much of their work is done overhead. The work consists of climbing and bending with long periods of standing. They risk injury from slips or falls off ladders and scaffolding when working from heights. Many are self-employed and can choose their hours and working conditions.

Physical Requirements

Good eyesight

Good physical condition, strong arms

Manual dexterity

Good color discretion

Good balance

Helpful School Subjects

Art

Chemistry

English

Math

Shop Courses

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Painters and Allied Trades.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Should have no allergies to paint or other chemical fumes. Nationally most are self-employed. Must be able to stand for long periods. Must be able to climb and bend. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were three active apprentices in Montana in 1989. The employment level for Painters and Paperhangers in 1986 was 273. It is expected to be 317 in 1995. Montana projections Indicate there will be 12 annual average openings to 1995; five of these openings will be due to growth and seven due to separation. Average wage in 1989 for journeyworkers was about $12.50 per hour.

PIANO TECHNICIAN

D.O.T. Code 730.281-038

Piano technicians repair, refinish, and tune pianos. Technicians talk with customers to find out what is wrong with their piano. They may play the instrument or partially dismantle it to inspect the parts. When problems are discovered, they make repairs or adjustments. They adjust piano strings so they will be in proper pitch. Technicians use common handtools as well as special ones, such as regulating, repinning, and restringing tools.

Working Conditions

The work of piano technicians is relatively safe, although they may suffer small cuts and bruises when making repairs. They perform their work in shops, music stores, homes, and public buildings, such as churches and schools. Working conditions are usually good.

Physical Requirements

Good hearing

Mechanical aptitude

Stamina

Manual dexterity

Helpful School Subjects

Woodworking

Music

Business Management

Accounting

Licensing Requirements

Licensing is not required, but registration as a Registered Piano Tuner-Technician is available from the Piano Technicians Guild. For information, write to the Piano Technicians Guild, 9140 Ward Pky., Kansas City, Missouri 64114.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. Employers usually prefer to hire workers with some knowledge of the trade. Some are self-employed. Competitive business. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Musical Instrument Repairers and Tuners in 1986 was 31. It is expected to be 41 in 1995. Montana projections indicate there will be six annual average openings to 1995; one of these openings will be due to growth and five due to separation. Average wage in 1989 for journeyworkers was about $7.25 per hour.

PINSETTER MECHANIC, AUTOMATIC

D.O.T. Code 638.261-022

Automatic pinsetter mechanics adjust and repair automatic pinsetting bowling machines. They follow maintenance manuals and schematics. They use handtools, power tools, and testing equipment to determine necessary repairs. Mechanics disassemble and repair mechanical and electrical parts, and clean and lubricate machines. Job duties may include reconditioning and painting bowling pins.

Working Conditions

Mechanics are exposed to heat, grease, and noise, and have to work in cramped places. Work may entail considerable kneeling, bending, and reaching to install or repair equipment.

Physical Requirements

Mechanical ability

Finger dexterity

Helpful School Subjects

Electrical Shop

English

Mechanical Drawing

Physics

Math

Welding

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma and at least 18 years old preferred. May require an aptitude test. Varied working hours. Frequent retraining required. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were two active apprentices in Montana in 1989. The employment level for Maintenance Repairers, General Utility in 1986 was 3305. It is expected to be 3840 in 1995. Montana projections indicate there will be 219 annual average openings to 1995; 59 of these openings will be due to growth and 160 due to separation. Average wage in 1989 for journeyworkers was about $5.40 per hour.

PIPEFITTER

D.O.T. Code 862.381-018

Pipefitters install and repair both high- and low-pressure pipe systems used in manufacturing, in the generation of electricity, and in heating and cooling buildings. Some pipefitters specialize in one type of system. They must be able to follow building plans and instructions and work efficiently with the materials and tools of the trade. Pipefitters use saws, pipe cutters, and pipe-bending machines. They connect lengths of pipe with fittings, and may use solder and torches or adhesives.

Working Conditions

Pipefitters need physical stamina because they frequently must lift heavy pipes and stand for long periods. They sometimes work in cramped and dirty places and may have to work outdoors in inclement weather. They can be injured by falls from ladders, cuts from sharp tools, and burns from hot pipes or from soldering equipment.

Physical Requirements

Good physical condition

Mechanical aptitude

Helpful School Subjects

English	Math
Drafting	Welding
Auto Mechanics	Chemistry
Wood and Metal Shops	Physics

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the United Association of Plumbers and Pipefitters.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 17 years old required. Aptitude test may be required. Considerable mechanical aptitude needed. May be seasonal work. May involve considerable travel. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 11 active apprentices in Montana in 1989. The employment level for Plumbers, Pipefitters, and Steamfitters in 1986 was 715. It is expected to be 828 in 1995. Montana projections indicate there will be 39 annual average openings to 1995; 13 of these openings will be due to growth and 26 due to separation. Average wage in 1989 for journeyworkers was about $18.75 per hour.

PLASTICS BENCH MECHANIC

D.O.T. Code 754.381-018

Plastics bench mechanics make and repair plastic articles. These include aircraft missile or spacecraft parts and assemblies, containers, industrial hats, signs, windows, and window awnings. Mechanics use blueprints, layouts, or other instructions to select proper instruments or tools for each operation. After fabrication or repair, mechanics use micrometers, gauges, and other precision measuring instruments to compare completed work with the tolerance limits stated in specifications.

Working Conditions

Most fabrication shops are well lighted and well ventilated. Mechanics operate powerful, high-speed machines that can be dangerous. They may have to wear protective equipment such as safety glasses and face masks. The work requires stamina because mechanics are on their feet much of the day and may do moderately heavy lifting.

Physical Requirements

Good form perception

Manual dexterity

Mechanical ability

Helpful School Subjects

Shop courses

Math

Blueprint Reading

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent preferred. Factory experience or machine shop training preferred. Exposed to odors and noise from machines. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Plastic Molding and Casting Machine Operators and Tenders in 1986 was seven. It is expected to be seven in 1995. Montana projections indicate there will be one annual average opening to 1995; this opening will be due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

PLATER

D.O.T. Code 500.380-010

Platers operate machines that coat metal products with other types of metal to provide protective or decorative surfaces, or to build up worn surfaces. They check temperature, concentration level, and quality of the coating material and the product. Platers adjust machines for quality control. They examine and measure objects after coating to determine thickness of the coating. Then they grind, polish, and rinse objects to maintain clean even surfaces.

Working Conditions

Most shops are well lighted and well ventilated. Platers operate powerful, high-speed machines that can be dangerous. They may have to wear protective equipment such as safety glasses and burn-resistant clothing. The work requires stamina because platers are on their feet much of the day and may do moderately heavy lifting.

Physical Requirements

Good eye-hand coordination

Able to follow instructions

and apply precise standards

Helpful School Subjects

Electricity	Electronics
Metallurgy	Chemistry
Physics	Math

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent preferred. Exposed to fumes. Swing shifts and weekend work common. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Electrolytic Plating and Coating Machine Setters and Set-up Operators, Metal and Plastic in 1986 was 13. It is expected to be nine in 1995. Montana projections indicate there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $8.00 per hour.

PLUMBER

D.O.T. Code 862.381-030

Plumbers install and repair the water, waste disposal, drainage, and gas systems in homes, commercial, and industrial buildings. They also install plumbing fixtures--bathtubs, sinks, and toilets--and appliances such as dishwashers and water heaters. Plumbers must be able to follow building plans and instructions and work efficiently with the materials and tools of the trade. They use saws, pipe cutters, and pipe-bending machines. They connect lengths of pipe with fittings, and may use solder and torches or adhesives.

Working Conditions

Plumbers need physical stamina because they frequently must lift heavy pipes and stand for long periods. They sometimes work in cramped and dirty places and may have to work outdoors in inclement weather. Plumbers can be injured by cuts from sharp tools and burns from hot pipes or from soldering equipment.

Physical Requirements

Good physical condition

Mechanical aptitude

Helpful School Subjects

English	Math
Drafting	Physics
Auto mechanics	Welding
Wood and Metal Shops	Chemistry

Licensing Requirements

For licensing information, write or call the Montana Board of Plumbers, 1218 East 6th Avenue, Helena, Montana 59620; phone (406) 444-4390.

Union Affiliation

May or may not be affiliated with the United Association of Plumbers and Pipefitters.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 17 years old required. Aptitude test may be required. Considerable mechanical aptitude needed. May be seasonal work. May require considerable travel. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 58 active apprentices in Montana in 1989. The employment level for Plumbers, Pipefitters, and Steamfitters in 1986 was 715. It is expected to be 828 in 1995. Montana projections indicate there will be 39 annual average openings to 1995; 13 of these openings will be due to growth and 26 due to separation. Average wage in 1989 for journeyworkers was about $18.75 per hour.

PONY EDGER

D.O.T. Code 667.682-050

Pony edgers work in sawmills cutting logs into boards of prescribed widths. They operate mechanical loaders that place logs on carriages, then they saw logs and determine grade and size of cuts. Pony edgers also operate saws that straighten the edges of boards. They may change saw blades as they are working.

Working Conditions

Work areas are well lighted, but noisy because of machinery and power tools used nearby. Wood dust may be a problem, so workers often wear masks for protection. Rigid adherence to safety precautions reduces risk of injury from power equipment such as saws, and contact with rough woodstock. Prolonged standing, lifting, and fitting heavy objects are often necessary.

Physical Requirements

Ability to pay attention to detail

Manual dexterity

Mechanical ability

Stamina

Helpful School Subjects

Machine Shop

Wood Shop

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. High school diploma or equivalent and at least 18 years old required. Risk injury from high speed tools and moving machinery. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Sawing Machine Operators and Tenders in 1986 was 617. It is expected to be 664 in 1995. Montana projections indicate there will be 13 annual average openings to 1995; five of these openings will be due to growth and eight due to separation. Average wage in 1989 for journeyworkers was about $9.00 per hour.

POWERHOUSE MECHANIC

D.O.T. Code 631.261-014

Powerhouse mechanics detect, identify, and correct any trouble that develops in the electrical and mechanical equipment used in power-generating stations. Mechanics may make special tools, rigging equipment, and replacement parts for equipment. They make repairs, ranging from a complete overhaul to replacing defective valves, gaskets, or bearings, using hand or power tools.

Working Conditions

Powerplants are clean and well lighted. Some powerhouse mechanics are exposed to high temperatures, dust, dirt, and high noise levels from the equipment. General maintenance duties may cause contact with oil and grease, and fumes or smoke. Workers are on their feet a lot. They may have to work in crouching or kneeling positions to inspect, clean, or repair equipment. They must be alert to avoid burns, electric shock, and injury from moving parts.

Physical Requirements

Ability to lift and carry

up to 50 pounds

Good manual dexterity and strength

Good finger dexterity and

motor coordination

Mechanical ability

Helpful School Subjects

Mechanical Drawing

Blueprint Reading

Physical Sciences

Shop Courses

Math

Welding

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is four years. Must be at least 18 years old. On-the-job training or seniority required. Not an entry-level occupation. Around heavy, noisy equipment. Union affiliation depends on the type of industry employment. Employment requires frequent retraining. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 22 active apprentices in Montana in 1989. The employment level for Machinery Mechanics, Plant in 1986 was 136. It is expected to be 154 in 1995. Montana projections indicate there will be seven annual average openings to 1995; two of these openings will be due to growth and five due to separation. Average wage in 1989 for journeyworkers was about $18.00 per hour.

POWER SAW MECHANIC

D.O.T. Code 625.281-030

Power saw mechanics repair and maintain portable saws powered by internal combustion engines (chain saws). They follow manufacturers' repair manuals to disassemble saws to examine parts and replace or repair parts as necessary. Mechanics use common handtools to make repairs. They may answer customers' questions and complaints and advise customers about the care and use of saws.

Working Conditions

Repair shops are quiet, well lighted, and adequately ventilated. The work is usually safe, but mechanics must be careful and follow safety precautions when operating saws. Power saw mechanics usually work with little or no direct supervision.

Physical Requirements

Mechanical aptitude

Manual dexterity

Good physical condition

Helpful School Subjects

Small Engine Repair

Auto Mechanics

Machine Shop

Math

Science

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Most provide own handtools. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Small Engine Specialists in 1986 was 101. It is expected to be 117 in 1995. Montana projections indicate there will be two annual average openings to 1995; none of these openings will be due to growth and two due to separation. Average wage in 1989 for journeyworkers was about $7.00 per hour.

PRECISION LENS GRINDER

D.O.T. Code 716.382-018

Precision lens grinders make prescription eyeglass lenses. They cut, grind, edge, and finish lenses according to specifications provided by dispensing opticians, optometrists, or ophthalmologists. Grinders use grinders, oscillators, and polishing machines to prepare lenses. They then make sure that each lens meets prescription specifications by using a lensmeter, which measures the degree and placement of the curve on the lens. Grinders assemble lenses and frames.

Working Conditions

Precision lens grinders work in relatively clean and well-lighted surroundings. At times they need to wear goggles to protect their eyes. Laboratories are relatively quiet despite the humming of machines used by grinders. Grinders may spend a lot of time standing.

Physical Requirements

Ability to stand all day

Good manual dexterity

Coordination

Helpful School Subjects

Mechanical Drawing

Physics

Basic Electricity

Math

Speech

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Requires precision and skill. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were two active apprentices in Montana in 1989. The employment level for Precision Optical Goods Workers in 1986 was 18. It is expected to be 21 in 1995. Montana projections indicate there will be one annual average opening to 1995; this opening will be due to separation. Average wage in 1989 for journeyworkers was about $8.50 per hour.

PRINTING PRESS OPERATOR

D.O.T. Codes 651.362-018, 651.362-030, 651.482-010

Printing press operators run printing presses in a pressroom. Operators set up and adjust presses to produce distinct and uniform printing impressions, making sure that paper and ink meet specifications. They then feed paper through the press cylinders, and adjust feed and tension controls. Operators check the presses as they run and correct problems as they occur. In some shops, press operators oil and clean the presses and make minor repairs.

Working Conditions

Operating a press can be physically and mentally demanding. Press operators are on their feet most of the time. Most printing presses are capable of high printing speeds, and adjustments must be made quickly to avoid waste. Pressrooms are noisy, and workers in certain areas wear ear protectors. Safe working habits are emphasized because press operators are subject to hazards when working near machinery. Operators often work under pressure to meet deadlines.

Physical Requirements

Eye-hand coordination

Manual dexterity

Good color vision

Ability to lift up to 100 pounds

Helpful School Subjects

Graphic Arts

Chemistry

Mechanical Drawing

Math

Physics

English

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the Billings-Missoula Printing and Graphics Communications Union (AFL-CIO) or the International Printing and Graphic Communications Union.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and 18 years of age preferred. Ability to see detail and picture objects of two or three dimensions. Union shops work only through apprenticeship training programs. Noisy work. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were six active apprentices in Montana in 1989. The employment level for Printing Press Machine Operators in 1986 was 134. It is expected to be 150 in 1995. Montana projections indicate there will be seven annual average openings to 1995; two of these openings will be due to growth and five due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

PRIVATE BRANCH EXCHANGE INSTALLER

D.O.T. Code 822.381-018

Private branch exchange installers install telephone switchboards and specialized communication equipment, such as telephoto circuits, mobile radiotelephones, and teletypewriters. Installers locate equipment on customers' premises. They connect telephone or telegraph cable terminals to wires and switchboards, following diagrams. They use handtools, soldering irons, and wrap guns. Installers test and adjust installations using voltmeters, ammeters, and test telephone sets.

Working Conditions

Installers usually work in clean, well-lighted, air-conditioned surroundings. Depending on the job, they may have to stand for long periods, climb ladders, and do some reaching, stooping, and light lifting. They must take precautions to avoid electrical shocks.

Physical Requirements

Manual dexterity

Excellent health

Good vision, color perception

Acute hearing

Able to lift heavy weights

Helpful School Subjects

Electronics

Math

Physical Education

Electrical Theory

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old required. JATC requires aptitude test. One year high school Algebra preferred. May require work on aerial ladders and platforms, in manholes, or in basements of large buildings. Requires constant retraining. May work long and irregular hours. Inexperienced workers often hired and trained. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 12 active apprentices in Montana in 1989. The employment level for Telephone Station Installers and Repairers in 1986 was 207. It is expected to be 165 in 1995. Montana projections indicate there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $13.50 per hour.

PROSTHETIST

D.O.T. Code 078.261-022

Prosthetists provide care to patients with partial or total absence of limbs. They examine and test the patient's prosthetic needs, then design prostheses (artificial devices used to replace limbs). Prosthetists make casts, measurements, and model changes. They then fit and adjust prostheses to assure function, comfort, and workmanship. They instruct the patient in prosthesis use. Work is done with the guidance of a physician.

Working Conditions

Prosthetists usually work in areas that are well lighted and well ventilated. The job is physically demanding at times because they have to lift and carry equipment. They may work in hospitals or clinics, directed by a physician.

Physical Requirements

Motor coordination

Manual and finger dexterity

Helpful School Subjects

Health

Math

Biology

Sciences

Licensing Requirements

Licensing is not necessary but certification is available from the American Board of Certification of AOPA, 717 Pendleton Street, Alexandria, VA 22314.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent preferred. Related health training or education preferred. Work involves stooping and reaching. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Medical Appliance Makers in 1986 was six. It is expected to be six in 1995. Montana projections indicate there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $9.00 per hour.

RADIO MECHANIC

D.O.T. Code 823.261-018

Radio mechanics test and repair stationary and mobile radio sending and receiving equipment. Mechanics use measuring and diagnostic devices to test, adjust, and repair equipment. Some may install, test and repair communication systems.

Working Conditions

Most radio mechanics work regular hours in shops or in businesses or homes where working conditions are good. They usually work alone and receive little supervision. Some are exposed to electrical shock hazards from equipment.

Physical Requirements

Good eye-hand coordination

Ability to notice and compare differences in objects

Color discretion

Helpful School Subjects

Machine Shop	Physics
Blueprint Reading	Drafting
Electronics	English
Computer Programming	Math

Licensing Requirements

Federal Communications Commission (FCC) licensing may be required by some employers.

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is three years. Previous work experience and/or post high school Electronics Technology training preferred. Frequent retraining may be necessary. Valid driver's license may be required. Travel may be necessary. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Radio Mechanics in 1986 was 54. It is expected to be 62 in 1995. Montana projections indicate there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $9.00 per hour.

REFRIGERATION MECHANIC

D.O.T. Code 637.261-026

Refrigeration mechanics install and service a variety of industrial and commercial refrigeration equipment. Mechanics follow blueprints, design specifications, and manufacturers' installation instructions to install and repair motors, compressors, condensing units, evaporators, and other parts. They connect this equipment to refrigerant lines and electrical power sources, then check for proper operation. Mechanics use a variety of hand and power tools including pipe cutters and benders and torches. They use testing devices to check electrical circuits and refrigerant pressures.

Working Conditions

Refrigeration mechanics work in office buildings and factories. They may work outside in cold or hot weather or in buildings that are uncomfortable because air-conditioning equipment is broken. They often work in awkward or cramped positions and sometimes have to work in high places. Hazards include electrical shock, burns, muscle strains, and other injuries from handling heavy equipment.

Physical Requirements

Mechanical ability

Good eye-hand coordination

Finger dexterity

Stamina

Helpful School Subjects

Math

Electronics

Welding

Physics

Electricity

Blueprint Reading

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the United Association of Plumbers and Pipefitters or the Sheet Metal Workers' International Association.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old preferred. Evening and weekend work necessary in emergencies. Overtime work common during summer. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were seven active apprentices in Montana in 1989. The employment level for Heating, Air Conditioning, and Refrigeration Mechanics and Installers in 1986 was 374. It is expected to be 440 in 1995. Montana projections indicate there will be 37 annual average openings to 1995; seven of these openings will be due to growth and 30 due to separation. Average wage in 1989 for journeyworkers was about $12.00 per hour.

RELAY TESTER

D.O.T. Code 729.281-038

Relay testers test, clean, repair, and adjust relays used to protect and control functions of relay equipment. These relays include circuit breakers, transformers, and automatic switches in power generating and distribution stations. They use testboards, ammeters, voltmeters, and other recording instruments to determine if all relay functions are performed correctly. Testers analyze testing information to determine and perform necessary repairs.

Working Conditions

Relay testers work both inside and outdoors. They must do a lot of climbing and lifting, and often work in stooped and cramped positions. All of the voltages relay testers come in contact with can cause death. Workers are sometimes on 24-hour call in emergency situations.

Physical Requirements

Good physical condition

Manual dexterity

Color discrimination

Ability to lift heavy objects and work in high places

Helpful School Subjects

Physical Education

Electrical Theory

Blueprint Reading

Electronics

Math

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old required. Background in mathematics. Aptitude test may be required. Employment requires constant retraining. May work long and irregular hours. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were three active apprentices in Montana in 1989. The employment level for Powerhouse, Substation, and Relay Electricians in 1986 was 44. It is expected to be 49 in 1995. Montana projections indicate there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $15.50 per hour.

RESPIRATORY THERAPIST

D.O.T. Code 079.361-010

Respiratory therapists treat patients with cardiorespiratory problems. Treatment may give temporary relief to patients with asthma or emphysema, or provide emergency care in cases of heart failure, stroke, drowning, or shock. The therapy worker's role is a highly responsible one. If a patient stops breathing for longer than three to five minutes there is little chance for recovery without brain damage. Therapists use various types of equipment for diagnosis, treatment, and patient management.

Working Conditions

Because hospitals operate around the clock, therapists may work evenings, nights, or weekends. They spend long periods standing and walking between patients' rooms. In an emergency, they work under a lot of stress. Gases used by therapists are potentially hazardous because they are used and stored under pressure. Safety precautions and regular maintenance and testing of equipment reduce the risk of injury.

Physical Requirements

Above average manual dexterity

Good general health

Helpful School Subjects

Health

Biology

Physics

Math

Licensing Requirements

Licensing is not required, but registration is available through the National Board for Respiratory Therapy (NBRT).

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. Post-high school training preferred. Holiday, weekend, and shift work is typical. Registration preferred by some employers. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Respiratory Therapists in 1986 was 193. It is expected to be 253 in 1995. Montana projections indicate there will be 14 annual average openings to 1995; seven of these openings will be due to growth and seven due to separation. Average wage in 1989 for journeyworkers was about $8.80 per hour.

ROOFER

D.O.T. Code 866.381-010

Roofers install and repair various kinds of roofing materials. These include tar and gravel, rubber, slate shingles, and tiles. Roofers apply several layers of materials to roofs to make them waterproof. Some may also waterproof and damp-proof masonry and concrete walls and floors.

Working Conditions

Roofers' work is strenuous. It involves heavy lifting, as well as climbing, bending, and kneeling. Roofers risk injuries from slips or falls from scaffolds, ladders, or roofs, and burns from hot materials. The roofing industry has one of the highest accident rates in the construction industries. Roofers work outdoors in all types of weather, particularly when making repairs. Roofs are extremely hot during the summer.

Physical Requirements

Good balance

Able to lift heavy weights

Ability to climb, bend, squat,

and work in high places

Manual dexterity

Eye-hand coordination

Helpful School Subjects

Physical Education

Mechanical Drawing

Shop Courses

Math

English

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the United Union of Roofers, Waterproofers and Allied Workers or the United Brotherhood of Carpenters and Joiners.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Related work experience preferred. Work with hot tar and machines. Possibility of burns. Work is seasonal. May require considerable travel. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 17 active apprentices in Montana in 1989. The employment level for Roofers in 1986 was 142. It is expected to be 178 in 1995. Montana projections indicate there will be 12 annual average openings to 1995; four of these openings will be due to growth and eight due to separation. Average wage in 1989 for journeyworkers was about $12.00 per hour.

SADDLE MAKER

D.O.T. Code 783.381-026

Saddle makers cut, assemble, and join leather parts and other materials to form saddles. They follow specifications to cut, sew, cement, and nail leather pieces together. Saddle makers apply leather dyes and liquid top coats to produce gloss. They decorate the saddle surface either by hand stitching or stamping the leather with decorative patterns and designs.

Working Conditions

Saddle makers work in a noisy environment because of machines used in sewing leather. Odors from leather dyes and stains are often present. The work is not strenuous and hazards are few. They must stand much of the time.

Physical Requirements

Manual dexterity

Coordination

Able to lift heavy weights

Good eyesight, color perception

Helpful School Subjects

Home Economics

Math

Mechanical Drawing

Shop Courses

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the Leatherworkers International Union of America. For information, write to the Leatherworkers International Union of America, 11 Peabody Square, Peabody, MA 01960.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. May require long work hours. Most are self-employed. Must provide own tools. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Shoe and Leather Workers in 1986 was 21. It is expected to be 23 in 1995. Montana projections indicate there will be three annual average openings to 1995; none of these openings will be due to growth and three due to separation. Average wage in 1989 for journeyworkers was about $7.00 per hour.

SALESPERSON, PARTS

D.O.T. Code 279.357-062

Parts salespersons sell spare and replaceable parts and equipment in repair shops or parts stores. They determine the make, year, and type of part needed and inspect damaged parts to determine parts required. Salespersons advise customers of parts needed according to a description of malfunction. They research information about price and stock number, and order parts for customers, using knowledge of parts specifications.

Working Conditions

Salespersons usually work in clean, comfortable, well-lighted stores. Their hours may vary. Some have to work during weekends or in the evening. Many jobs may be part-time.

Physical Requirements

Ability to stand for long periods of time

Ability to deal with public

Good communications skills

Helpful School Subjects

Home Economics

Math

Sales

Bookkeeping

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Association of Machinists and Aerospace Workers (Automotive Trades).

Additional Information

Length of this apprenticeship program is two years. High school diploma or equivalent and at least 18 years old preferred. Sales experience preferred. Previous selling experience may help in finding a job. Work week may include evenings and weekends. Auto parts apprenticeships are available through unions and the Montana Automobile Dealer's Association. For more information on auto parts apprenticeships, contact the Bureau of Apprenticeship & Training, U.S. Dept. of Labor, Drawer 1055, Federal Office Building, 302 South Park, Helena, Montana 59626, or the Montana Automobile Dealer's Association, 501 North Sanders, Helena, Montana 59601. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 10 active apprentices in Montana in 1989. The employment level for Salespersons, Parts in 1986 was 1305. It is expected to be 1360 in 1995. Montana projections indicate there will be 34 annual average openings to 1995; six of these openings will be due to growth and 28 due to separation. Average wage in 1989 for journeyworkers was about $7.25 per hour.

SAW FILER

D.O.T. Code 701.381-014

Saw filers repair bandsaws, handsaws, and circular saw blades according to specifications. They examine saws for defects and cut broken teeth from saws, using power shears. Filers form teeth on saw blades by beveling joints on grinders and welding or brazing them together, straighten, and adjust blades. They use handtools, machine tools, and welding equipment.

Working Conditions

Repair shops are quiet, well lighted, and adequately ventilated. The work is usually safe, but filers must be careful and follow safety precautions when operating machine tools. Saw filers usually work with little or no direct supervision.

Physical Requirements

Manual dexterity

Eye-hand coordination

Spatial and form perception

Helpful School Subjects

Machine Shop

Metallurgy

Blueprint Reading

Math

Woodworking

Drafting

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. Prefer at least 18 years old. Noise levels may be high. Risk of injury from sharp saws. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were three active apprentices in Montana in 1989. The employment level for Tool Grinders, Filers, and Sharpeners in 1986 was 154. It is expected to be 166 in 1995. Montana projections indicate there will be six annual average openings to 1995; one of these openings will be due to growth and five due to separation. Average wage in 1989 for journeyworkers was about $9.50 per hour.

SCREW MACHINE SET-UP OPERATOR

D.O.T. Code 604.280-014

Screw machine set-up operators set up and operate lathe-type screw machines. Operators study blueprints, visualize machining to be done, and plan the sequence of operations. They perform turning, boring, threading, and facing operations on metal bar stock on a custom basis. They assure that pieces conform to specifications.

Working Conditions

Most operators work in shops that are well lighted and well ventilated. Machinery can be dangerous. Operators must wear safety goggles and earplugs to protect against flying particles of metal and noise from machines.

Physical Requirements

Good eye-hand coordination

Able to visualize object of two or three dimensions and make visual comparisons

Helpful School Subjects

Machine Shop
Mechanical Drawing
Blueprint Reading
Math
Physics
Drafting
Metallurgy

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old required. Aptitude test required. Risk injury from high speed cutting tools, moving machinery, metal chips, and abrasive dust. Most supply own handtools. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Machinists in 1986 was 738. It is expected to be 750 in 1995. Montana projections indicate there will be 23 annual average openings to 1995; one of these openings will be due to growth and 22 due to separation. Average wage in 1989 for journeyworkers was about $9.50 per hour.

SEWING MACHINE REPAIRER

D.O.T. Code 639.281-018

Sewing machine repairers fix and adjust sewing machines for private customers and industriallzed sewing departments. Repairers dismantle machines and replace or repair broken or worn parts using handtools. They observe sewing machines in action to test performance. Some uncrate and assemble new machlnes.

Working Conditions

Sewing machine repairers usually work in repair shops that are well-lighted and ventilated, but are sometimes noisy when machines are tested. They usually work with little or no direct supervision.

Physical Requirements

Ability to lift and kneel

Good eyesight

Good use of hands and arms

Mechanical aptitude

Helpful School Subjects

Electronics

Home Economics

Public Speaking

Blueprint Reading

Shop

Math

Chemlstry

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is three years. Prefer high school or vo-tech graduate. Experience preferred in Electronics or Applied Electricity. Periodic retraining required. Valid driver's license may be required. Worker may provide own set of tools. May require some weekend work. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Electric Home Appliance and Power Tool Repairers in 1986 was 166. It is expected to be 201 in 1995. Montana projections indicate there will be 12 annual average openings to 1995; four of these openings will be due to growth and eight due to separation. Average wage in 1989 for journeyworkers was about $6.50 per hour.

SHEET METAL SERVICE WORKER

D.O.T. Code 637.261-026

Sheet metal service workers install, service and repair air conditioning and heating equipment. They use knowledge of refrigeration theory, pipefitting, and structural layout. Workers may make, assemble, and install ductwork and chassis parts using metalworking and welding equipment and handtools.

Working Conditions

Sheet metal service workers work anywhere there is climate control equipment. They may work outside in cold or hot weather or in buildings that are uncomfortable because the air-conditioning or heating equipment is broken. In addition, workers often work in awkward or cramped positions and sometimes work in high places. Hazards include electrical shock, burns, muscle strains, and other injuries from handling heavy equipment.

Physical Requirements

Mechanical ability

Good eye-hand coordination

Finger dexterity

Stamina

Helpful School Subjects

Math

Physics

Shop Electronics

Electricity

Blueprint Reading

Welding

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the United Association of Plumbers and Pipefitters or the Sheet Metal Workers' International Association.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old preferred. One year prior education or experience may be required. Evening and weekend work necessary in emergencies. Overtime work common during summer and winter. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were six active apprentices in Montana in 1989. The employment level for Sheet Metal Workers in 1986 was 262. Employment is estimated to be 284 In 1995. Montana projections show there will be three annual average openings to 1995; two of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $16.42 per hour.

SHEET METAL WORKER

D.O.T. Code 804.281-010

Sheet metal workers make, install, and maintain sheet metal products. These include kitchen equipment, roofs, siding, rain gutters, skylights, and outdoor signs. They perform the work according to job orders or blueprints. Workers use metalworking and welding equipment and handtools, and bolt, weld, rivet, or solder pieces to make finished products.

Working Conditions

Sheet metal fabricators work in shops that are well lighted and well ventilated. They stand for long periods of time and may have to lift heavy materials and finished pieces. Working around high-speed machines can be dangerous, and workers must follow safety practices. Some may work installing equipment on location for customers. Those doing installation work do considerable bending, lifting, standing, climbing, and squatting. They sometimes work in close quarters or in awkward positions. They may get cuts and burns from materials and tools.

Physical Requirements

Average numerical ability

Finger and manual dexterity

Good physical condition

Mechanical aptitude

High degree of precision

Ability to work in high places

Helpful School Subjects

Mechanical Drawing

Welding

Metal Shop

Math

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the Sheet Metal Workers' International Association.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Competition keen. Noisy work environment. For information on nature of work, wages, methods of preparation, and on-the-job training, write the National Training Fund, Sheet Metal and Air Conditioning Industry, 1900 L Street NW, Suite 405, Washington, DC 20036. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 16 active apprentices in Montana in 1989. The employment level for Sheet Metal Workers in 1986 was 262. It is expected to be 284 in 1995. Montana projections indicate there will be three annual average openings to 1995; two of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $16.42 per hour.

SHOE REPAIRER

D.O.T. Code 365.361-014

Shoe repairers use knowledge of leather working and shoe construction to refurbish worn shoes and other leather goods. The most common type of shoe repair is replacing soles and heels. Repairers use hand-tools such as knives, hammers, awls, and skivers (for splitting leather). They also use power-operated equipment such as sewing machines, heel nailing machines, hole punching machines, and sole stitchers.

Working Conditions

Shoe repairers usually work in small rooms that may be crowded and noisy. Odors from leather dyes and stains are often present. The work is not strenuous and hazards are few. Repairers need stamina because they must stand much of the time.

Physical Requirements

Able to stand for long periods of time

Manual dexterity

Mechanical aptitude

Good eyesight, color vision

Helpful School Subjects

English

Math

Shop Courses

Bookkeeping

Business Management

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Many are self-employed. Employment concentrated in large cities but available in small towns. May work six days per week. Training information is available from the Shoe Service Institute of America, 222 W. Adams St., Chicago, Illinois 60606, or from Helena Industries, 1421 Helena Avenue, Helena, MT 59601; phone 442-8959. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were two active apprentices in Montana in 1989. The employment level for Shoe and Leather Workers in 1986 was 21. It is expected to be 23 in 1995. Montana projections indicate there will be three annual average openings to 1995; none of these openings will be due to growth and three due to separation. Average wage in 1989 for journeyworkers was about $7.00 per hour.

SIGN ERECTOR

D.O.T. Code 869.381-026

Sign erectors secure preassembled illuminated signs onto buildings or other structures. Erectors use sketches, drawings, or blueprints. They make electrical connections and test signs for correct operation. Erectors use handtools, power tools, and welding equipment. Some may make signs according to certain specifications.

Working Conditions

Sign erectors must have strong arms as much of their work is done overhead. Some of the work may require climbing and bending with long periods of standing. They risk injury from slips or falls off ladders and scaffolding when working from heights. Many are self-employed and can choose their hours and working conditions.

Physical Requirements

Good physical condition

Able to lift heavy objects

Good balance

Helpful School Subjects

Arithmetic

Drafting

Electrical Theory

Electronics

Physical Education

Woodworking

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. Prefer at least 18 years old. Knowledge of construction methods and materials preferred. Work often performed outdoors. Considerable danger of falls and burns. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for All Other Mechanics, Installers, and Repairers in 1986 was 665. It is expected to be 751 in 1995. Montana projections indicate there will be 42 annual average openings to 1995; 10 of these openings will be due to growth and 32 due to separation. Average wage in 1989 for journeyworkers was about $10.90 per hour.

SIGN PAINTER

D.O.T. Code 970.381-026

Sign painters use brushes, rollers, and spray guns to apply paint to surfaces of signs. They have to prepare surfaces by removing grease and scale, or by resurfacing imperfections. Painters mix paints and match colors. They must have a knowledge of paint composition, color harmony, and balance.

Working Conditions

Painters must have strong arms as much of their work is done overhead. Some of the work may require climbing and bending with long periods of standing. They risk injury from slips or falls off ladders and scaffolding when working from heights. Many are self-employed and can choose their hours and working conditions.

Physical Requirements

Good eyesight

Good physical condition, strong arms

Manual dexterity

Good color discretion

Good balance

Helpful School Subjects

Graphic Art

English

Shop Courses

Chemistry

Math

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Painters and Allied Trades.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Should have no allergies to paint or other chemical fumes. Must be able to stand for long periods. Must be able to climb and bend. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for All Other Mechanics, Installers, and Repairers in 1986 was 665. It is expected to be 751 In 1995. Montana projections indicate there will be 42 annual average openings to 1995; 10 of these openings will be due to growth and 32 due to separation. Average wage in 1989 for journeyworkers was about $12.30 per hour.

SMALL ENGINE MECHANIC

D.O.T. Code 625.281-034

Small engine mechanics repair and service equipment such as motors, water pumps, generators of outdoor lawnmowers, garden tractors, go-carts, and snowmobiles. They may have to use special testing equipment and disassemble some parts for further examination. Mechanics adjust, repair, or replace engines using hand and power tools, then test equipment for proper operation.

Working Conditions

Small engine mechanics usually work in repair shops that are well lighted and ventilated, but can be noisy when engines are tested. Mechanics may work less than 40 hours a week during the winter, and more than 40 hours a week during warmer weather.

Physical Requirements

Mechanical aptitude

Manual dexterity

Good physical condition

Helpful School Subjects

Small Engine Repair

Auto Mechanics

Machine Shop

Math

Science

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. High school diploma or equivalent and at least 18 years old preferred. Most provide own handtools. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were two active apprentices in Montana in 1989. The employment level for Small Engine Specialists in 1986 was 101. It is expected to be 117 in 1995. Montana projections indicate there will be two annual average openings to 1995; two of these openings will be due to growth and none due to separation. Average wage in 1989 for journeyworkers was about $7.00 per hour.

SOUND TECHNICIAN

D.O.T. Code 829.281-022

Sound technicians install, maintain, and service sound and communication systems, multiple antenna systems, closed circuit TV systems, and associated machines. They install this equipment on customers' premises, using coaxial cable, interconnecting cable, and wiring. Technicians then test installation to verify that equipment functions correctly. Some may install stereophonic parts for playing music. They follow diagrams and use handtools and testing devices.

Working Conditions

Installers usually work in clean, well-lighted, air-conditioned surroundings. Depending on the job, they may have to stand for long periods, climb ladders, and do some reaching, stooping, and light lifting. They must take precautions to avoid electrical shocks.

Physical Requirements

Manual dexterity

Excellent health

Good vision, color perception

Acute hearing

Able to lift heavy weights

Helpful School Subjects

Electronics

Physical Education

Electrical Theory

Math

Electrical Theory

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old required. Work on aerial ladders and platforms, in manholes, or in basements of large buildings. Requires constant retraining. May work long and irregular hours. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for All Other Communications Equipment Mechanics in 1986 was 37. It is expected to be 44 in 1995. Montana projections indicate there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $11.00 per hour.

STATIONARY ENGINEER (BOILER OPERATOR)

D.O.T. Code 950.382-026

Stationary engineers, or boiler operators, start up and shut down equipment to meet demands for power. They insure that the equipment is operating economically and within set up limits. They monitor meters, gauges, and other instruments attached to equipment and adjust whenever necessary. Stationary engineers keep a log of all facts about the operation and maintenance of equipment. These workers must detect, identify, and correct any trouble that develops. They use hand or power tools to make repairs. Routine maintenance on equipment is a job duty.

Working Conditions

Engine rooms, powerplants, and boiler rooms are usually clean and well lighted. Stationary engineers are exposed to high temperatures, dust, dirt, and high noise levels from equipment. General maintenance duties may cause contact with oil and grease, and fumes or smoke. Workers are on their feet a lot. They may have to crawl inside boilers and work in crouching or kneeling positions to inspect, clean, or repair equipment. They must be alert to avoid burns, electric shock, and injury from moving parts.

Physical Requirements

Mechanical aptitude

Manual dexterity

Good physical condition

Helpful School Subjects

Mechanical Drawing

Machine Shop

Applied Electricity

Chemistry

Physics

Licensing Requirements

For licensing information, write or call the Safety Bureau, Workers' Compensation Division, 5 South Last Chance Gulch, Helena, Montana 59604; phone (406) 444-6401.

Union Affiliation

May or may not be affiliated with the International Union of Operating Engineers.

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and 18 year old preferred. Risk of burns from some machinery exists. Shift work is common. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 14 active apprentices in Montana in 1989. The employment level for Stationary Engineers in 1986 was 114. It is expected to be 118 in 1995. Montana projections indicate there will be four annual average openings to 1995; none of these openings will be due to growth and four due to separation. Average wage in 1989 for journeyworkers was about $11.00 per hour.

STONE MASON

D.O.T. Code 861.381-038

Stone masons build stone walls as well as set stone exteriors and floors. Work is often done from a set of drawings in which each stone is numbered for identification. Masons build walls by alternating layers of mortar and stone. They may set stone floors or repair imperfections and cracks in existing walls and floors. Stone masons use handtools and mortar tools to complete their work.

Working Conditions

Stone masons usually work outdoors, but not when exposed to rain or freezing conditions. They stand, kneel, and bend for long periods and may have to lift heavy materials. Injuries from tools and falls from scaffolds are hazards. However, injuries are less likely to occur to these workers than other construction workers.

Physical Requirements

Good health

Able to do heavy lifting

Able to work standing and stooping for prolonged periods

Good sense of balance

Helpful School Subjects

Math

Mechanical Drawing

Blueprint Reading

Shop Courses

Art

English

Sketching

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Union of Bricklayers and Stonemasons.

Additional Information

Length of this apprenticeship program is three years. Must be at least 17 years old. JATC requires aptitude test, high school diploma or equivalent. Many are self-employed. Employment opportunities vary from year to year with the building industry. Most work available in spring and summer. Cheaper concrete is replacing stone and marble in construction for many buildings. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Stone Masons in 1986 was 28. It is expected to be 36 in 1995. Montana projections indicate there will be two annual average openings to 1995; one of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $17.95 per hour.

TAXIDERMIST

D.O.T. Code 199.261-010

Taxidermists mount skins of birds, fish, and animals in lifelike form. With special knives, scissors, and pliers, they remove skins, taking care to preserve hair and feathers. Skins are preserved by rubbing chemical solutions into them, then taxidermists fit skins to forms using adhesive or modeling clay. Taxidermists finish specimens by placing eyes and claws, dress feathers, and brush furs. They may use paints on fish mounts.

Working Conditions

Taxidermists work inside shops that are well lighted. They must use caution when working with chemicals to prevent burns and other injuries. Some of the work is very detailed, and taxidermists may bend over a workbench for long periods.

Physical Requirements

Manual dexterity

Good vision, color perception

Able to lift heavy weights

Spacial ability

Form perception

Personable

Helpful School Subjects

Physical Sciences

Art

Biology

Licensing Requirements

For licensing information, write or call the Law Enforcement Division, Department of Fish, Wildlife and Parks, 1420 E. Sixth Avenue, Helena, Montana 59620; phone (406) 444-2452.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. Many are self employed. Must endure odors from specimens and preserving chemicals. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for All Other Hand Workers in 1986 was 167. It is expected to be 151 in 1995. Montana projections indicate there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $8.75 per hour.

TELEPHONE LINE INSTALLER-REPAIRER

D.O.T. Code 822.381-014

Telephone line installers-repairers spend much of their time installing, maintaining, or repairing telephone lines. They must read and interpret service orders and circuit diagrams in order to make necessary installations and repairs. Preventive maintenance is done periodically by checking to make sure lines are clear of tree limbs or other obstructions that could cause problems. Repairers make routine checks to be sure that insulation on cables is in good condition and that insulators and other equipment on line poles are working properly. They may have to make emergency repairs as rapidly as possible.

Working Conditions

Line installers-repairers usually work outdoors in all kinds of weather. They must do a lot of climbing and lifting, and often work in stooped and cramped positions. They must wear safety equipment when entering manholes. These workers are subject to 24-hour call. At times they may have to work long and irregular hours to restore service. They may travel to distant locations and occasionally stay for a lengthy period to help restore damaged facilities or install new ones.

Physical Requirements

Excellent health

Ability to lift heavy objects

Good color discretion

Strong

Ability to work in high places

Helpful School Subjects

Electrical Theory

Electronics

Physical Education

Math

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old preferred. May require aptitude test and math background. Requires constant retraining. May work long and irregular hours. Inexperienced workers often hired. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There was one active apprentice in Montana in 1989. The employment level for Station Installers and Repairers, Telephone in 1986 was 207. It is expected to be 165 in 1995. Montana projections indicate there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $15.40 per hour.

TELEVISION AND RADIO REPAIRER

D.O.T. Code 720.281-018

Television and radio repairers repair television sets and radios. They conduct routine checks for common sources of trouble based on the customer's description. Repairers refer to wiring diagrams and service manuals that show connections and provide instructions on how to locate problems. They replace faulty parts or adjust controls, such as focusing and converging the picture or correcting color balance of a television set. Repairers use pliers, soldering guns, wire cutters, and other handtools to make repairs.

Working Conditions

Television and radio repairers usually work alone and receive little supervision Repairers who service products in homes may do considerable driving. Potential hazards include electrical shock and strains from lifting and carrying heavy or unwieldy objects.

Physical Requirements

Good eye-hand coordination

Good hearing

Good eyesight, color discretion

Manual dexterity

Mechanical aptitude

Helpful School Subjects

Radio Shop

Electrical Shop

Electronics

Speech

Math

English

Licensing Requirements

Federal Communications Commission (FCC) licensing may be required by some employers.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old preferred. May have to furnish own handtools. Frequent retraining and continuing education required at all levels. Many are self-employed. Electronics background and vo-tech graduates preferred. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Home Entertainment Equipment Repairers in 1986 was 115. It is expected to be 145 in 1995. Montana projections indicate there will be eight annual average openings to 1995; three of these openings will be due to growth and five due to separation. Average wage in 1989 for journeyworkers was about $7.00 per hour.

TRANSPORTATION EQUIPMENT PAINTER

D.O.T. Code 845.381-014

Transportation equipment painters use brushes and spray guns to apply paint to surfaces of transportation equipment, such as automobiles, trucks, and buses. They have to prepare surfaces by removing grease and scale, or by resurfacing imperfections. Painters mix paints and match colors. They must have a knowledge of paint composition.

Working Conditions

Transportation equipment painters risk injury from slips or falls off ladders when working on large equipment. The work consists of climbing and bending with long periods of standing.

Physical Requirements

Good eyesight

Good physical condition, strong arms

Manual dexterity

Good color discretion

Good balance

Helpful School Subjects

Art

Chemistry

Shop Courses

Math

Licensing Requirements

N/A

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent and at least 18 years old preferred. Should have no allergies to paint or other chemical fumes. Must be able to stand for long periods. Must be able to climb and bend. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Painters, Transportation Equipment in 1986 was 31. It is expected to be 35 in 1995. Montana projections indicate there will be one annual average opening to 1995; this opening will be due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

TROUBLE LOCATOR, TEST DESK

D.O.T. Code 822.361-030

Trouble locators locate malfunctions in telephone or telegraph lines. They use switchboards composed of electrical testing instruments. Locators report the nature of trouble to inside and outside maintenance crews and direct and coordinate trouble-clearing activities. They may contact subscribers to investigate reported trouble.

Working Conditions

To cope with emergencies that may arise, these workers may be on 24-hour call. They generally work in clean, well-lighted, air-conditioned surroundings.

Physical Requirements

Manual dexterity

Excellent health

Good vision, color perception

Acute hearing

Able to lift heavy weights

Helpful School Subjects

Physical Education

Math

Electrical Theory

Electronics

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of this apprenticeship program is four years. High school diploma or equivalent and at least 18 years old required. JATC requires aptitude test. One year high school Algebra preferred. Requires constant retraining. May work long and irregular hours. Inexperienced workers often hired and trained. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Telephone Station Installers and Repairers in 1986 was 207. It is expected to be 165 in 1995. Montana projections indicate there will be no annual average openings to 1995. Average wage in 1989 for journeyworkers was about $15.40 per hour.

TRUCK BODY BUILDER

D.O.T. Code 807.281-010

Truck body builders construct and repair metal truck bodies and trailers according to specifications. They lay out dimensions on metal stock, such as sheet metal and angle iron, using a square, rule, and punch. Builders assemble parts using handtools and power tools. They weld body parts and braces together, install wood floors, interiors, insulations, and fixtures, and install wiring for electrical equipment. Truck body builders may paint or prime metal surfaces.

Working Conditions

Truck body builders usually work in shops that are well lighted and well ventilated. They stand for long periods and may have to lift heavy materials and finished pieces. They are subject to cuts and burns from materials and tools.

Physical Requirements

General good health

Stamina

Good eye-hand coordination

Good color perception

Ability to lift up to 75 pounds

Helpful School Subjects

Industrial Arts

Drafting

Metallurgy

Math

Painting

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Association of Machinists and Aerospace Workers (Automotive Trades).

Additional Information

Length of this apprenticeship program is three years. Must be 17 years old. JATC requires high school diploma or equivalent, aptitude test. Ability to work in a closed space with dust and chemical fumes. Employment available both in small and large towns, but union shops are more prevalent in larger towns. Career advancement opportunities limited. Job opportunities better for applicants with previous related experience through a vo-tech, military service, etc. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for All Other Assemblers and Fabricators in 1986 was 487. It is expected to be 519 In 1995. Montana projections indicate there will be 30 annual average openings to 1995; four of these openings will be due to growth and 26 due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

UTILITY LINE WORKERS

D.O.T. Code 821.261-014

Utility line workers spend much of their time installing, maintaining, or repairing electric power lines. They must read and interpret service orders and circuit diagrams to determine proper installation or necessary repairs. Workers periodically check to make sure lines are clear of tree limbs or other obstructions that could cause problems. They also routinely check to make sure that insulation on cables is in good condition and that insulators and other equipment on line poles are working properly. Emergency repairs may have to be done as rapidly as possible.

Working Conditions

Utility line workers usually work outdoors in all kinds of weather. They must do a lot of climbing and lifting. They must wear safety equipment when entering manholes. These workers are subject to 24-hour call. At times they may have to work long and irregular hours to restore service. Travel to distant locations and lengthy stays may be necessary to help restore damaged facilities or build new ones.

Physical Requirements

Good physical condition

Good use of hands and fingers

Manual dexterity

Color discrimination

Ability to lift heavy objects and

work in high places

Helpful School Subjects

Electrical Theory

Math

Physical Education

Electronics

Blueprint Reading

Licensing Requirements

N/A

Union Affiliation

May or may not be affiliated with the International Brotherhood of Electrical Workers.

Additional Information

Length of these apprenticeship programs is three years. High school diploma or equivalent and at least 18 years old required. Background in mathematics. Good physical condition. Aptitude test may be required. Considerable danger of falls or electrical shock. Employment requires constant retraining. Often provide own belt, tools, and boots (approx. $450). See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were 32 active apprentices in Montana in 1989. The employment level for Electrical Powerline Installers and Repairers in 1986 was 552. It is expected to be 549 in 1995. Montana projections indicate there will be 14 annual average openings to 1995; none of these openings will be due to growth and 14 due to separation. Average wage in 1989 for journeyworkers was about $18.10 per hour.

WATER TREATMENT PLANT OPERATOR

D.O.T. Code 954.382-014

Water treatment plant operators control processes and equipment to remove solid materials, chemicals, and microorganisms from the water or to make them harmless. Operators read and interpret meters and gauges to make sure plant equipment and processes are working properly and adjust controls as needed. They operate chemical-feeding devices, take samples of water or wastewater and perform laboratory analyses, and test and adjust levels of chlorine in wastewater. Water treatment plant operators make minor repairs to valves, pumps, and other equipment. They use gauges, wrenches, pliers, and other hand-tools, as well as special tools.

Working Conditions

Water treatment plant operators work both indoors and outdoors and may be exposed to noise from machinery and unpleasant odors. Persons with allergies may suffer due to dust and other substances in the air. Operators have to stoop, reach, and climb, and often get their clothes dirty. Sometimes they are encounter hazardous conditions, such as slippery walkways, dangerous gases, and malfunctioning equipment. Overtime may be required in emergencies.

Physical Requirements

Mechanical ability

Agility

Eye-hand coordination

Manual dexterity

Helpful School Subjects

Biology

Chemistry

Algebra

Licensing Requirements

Certification required by the Montana Department of Health and Environmental Sciences. For certification information, write or call the Water Quality Bureau, Department of Health and Environmental Sciences, Room A206, Cogswell Building, Helena, Montana 59620; phone (406) 444-2691.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is three years. High school diploma or equivalent required and at least 18 years old preferred. May require formal training. Exposed to fumes, dangerous gases, and noisy motors. Shift and weekend work common. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Water and Liquid Waste Treatment Plant and System Operators in 1986 was 355. It is expected to be 398 in 1995. Montana projections indicate there will be six annual average openings to 1995; five of these openings will be due to growth and one due to separation. Average wage in 1989 for journeyworkers was about $10.00 per hour.

WELDER

D.O.T. Code 819.384-010

Welders use gas or arc welding equipment to join two or more pieces of metal together. They use welding equipment to cut metal pieces to the correct size and shape in preparation for the welding process. Welders need knowledge of proper tip size and gas pressure in gas welding, or proper welding rod and amperage setting in arc welding to be sure of proper bonding. They must carefully check the welding process to prevent overheating of the parts being welded. Welders may construct items following blueprints or oral instructions.

Working Conditions

Welders are exposed to several hazards. They use protective clothing, safety shoes, goggles, helmets with protective lenses, and other devices to prevent burns and eye injuries. Some metals give off toxic gases and fumes as they melt. Workers are often in contact with rust, grease, and dirt on metal surfaces. They may have to move and hold heavy beams or pipes being welded. They often work by themselves.

Physical Requirements

Manual dexterity

Good eye-hand coordination

Good physical condition

Good eyesight

Helpful School Subjects

Blueprint Reading

Mechanical Drawing

Machine Shop

Math

Metallurgy

Welding

Licensing Requirements

Licensing is not required, but certification, which involves practical exams and payment of a fee, is required for some specialized welding jobs such as bridges, where the strength of the weld is important. The exam is usually given by the employer or a government agency.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. High school diploma or equivalent and at least 18 years old preferred. Formal training preferred. Courses listed above will improve chances for getting an entry-level job. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were two active apprentices in Montana in 1989. The employment level for Welders and Cutters in 1986 was 712. It is expected to be 832 in 1995. Montana projections indicate there will be 25 annual average openings to 1995; 13 of these openings will be due to growth and 12 due to separation. Average wage in 1989 for journeyworkers was about $9.40 per hour.

WELL DRILL OPERATOR

D.O.T. Code 859.362-010

Well drill operators set up and level portable drilling rigs to drill water wells, using handtools and power tools. They operate drill rigs that drill or punch a well bore. Operators record drilling progress and important geological data. They maintain their equipment by splicing worn or broken cable as necessary. Operators make well casings and build up worn drill bits, using cutting and welding equipment.

Working Conditions

Well drill operators work outside in all kinds of weather. Noise from drills can be extreme. Safety precautions must be observed when drilling.

Physical Requirements

Mechanical aptitude

Physical stamina

Helpful School Subjects

Blueprint Reading

Machine Shop

Math

Geology

Licensing Requirements

For licensing information, write or call the Water Resources Division, Department of Natural Resources and Conservation, 1520 E. Sixth Avenue, Helena, Montana 59620; phone (406) 444-6643.

Union Affiliation

N/A

Additional Information

Length of this apprenticeship program is two years. High school diploma required. Should be able to work independently. Geological training helpful. See sources on pages 2 and 3 for more information.

Montana Outlook and Wages

There were no active apprentices in Montana in 1989. The employment level for Earth Drillers Except Oil and Gas in 1986 was 183. It is expected to be 206 in 1995. Montana projections indicate there will be 10 annual average openings to 1995; three of these openings will be due to growth and seven due to separation. Average wage in 1989 for journeyworkers was about $9.00 per hour.

APPENDIX 1

GENERAL APPRENTICESHIP SELECTION COMMITTEE CONCERNS AND QUESTIONS

For many apprenticeship programs, a selection committee interviews applicants. The following lists some general concerns of committees, hints on how applicants can deal with those concerns, and examples of questions asked.

(Note: The specific concerns and actual questions will vary with the trade and the committee. To meet federal requirements for Equal Employment Opportunity and Affirmative Action, a committee for a specific apprenticeship program will ask all applicants the same questions.)

There are several things committee members want to know about:

1. Desire and Persistence
   - Explain why you want to enter the trade.
   - Tell how you became interested in the trade.
   - Let the committee know if you have ever applied to this or any other trade before.
2. Knowledge of the Trade
   - Do some homework on the trade. Watch the workers and see the conditions you'd be working in.
   - Describe some of the jobs the workers perform.
   - Talk about the tools and equipment used in the trade.
   - Know how long the apprenticeship program is.
   - Know what the apprenticeship and the journeyworker pay scales are.
   - Do some homework on other trades, too. Show you know about other trades and explain your reasons for choosing this particular trade over others.
3. Qualifications for the Apprenticeship Program
   - Show that you know all the qualifications for entering the program.
   - If you do not meet all the qualifications, let the committee know what you are doing to meet them. For example, you are taking parts of the GED or enrolling In a geometry class.
4. Work Experience
   - Describe any related work experience that provided exposure to the trade.
   - Relate any experience where you have a favorable work record (good references, attendance, and long-term employment).
5. Personal Experience
   - Describe hobbies or other activities that show mechanical ability or physical strength related to the trade. For example, you use handtools, service your car, and plan the family budget.

The following are sample questions asked during the interview. Answer all questions as completely as possible. You need to tell the committee about all of your trade-related interests, activities, awards, and experience.

1. Why do you want to be a . . . . . ?

2. Why dld you choose . . . . . over some other trade?

3. Have you ever seen anyone do this kind of work?

4. Construction sites are cold in winter, hot in summer. They can be muddy and wet. What makes you consider working in these conditions?

5. What kinds of work have you done in the past?

6. The language on a construction site gets pretty rough sometimes. Do you think you can take it?

7. Can you travel? (Asked only when the job requires travel.)

8. Do you have day care for children? Transportation?

9. (If the applicant has any college) I see you went through . . . . . years of college. Why aren't you working in the field for which you trained?

10. How do you feel about going to school as part of your apprenticeship?

11. Is there anything else that you would like to tell us about yourself?

A general question like this provides you with the chance to describe anything not covered by previous questions that you think is important.

SOURCE: Oregon Career Information System

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